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**JULY, 1945**

VOL. 44, NO. 7

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This Month in



Reg. U.S. Pat. Off.

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**DW** The Magazine that Integrates  
All Phases of Distribution

THE publication in which shipper, carrier, receiver, warehouseman and equipment manufacturer meet on common ground to obtain and exchange ideas and suggestions for more efficient and economical distribution of raw materials and finished products.

D and W is a clearing house of information for all who are interested in distribution of anything, anywhere from points of origin and production to points of ultimate use and consumption whether sectional, national or international.

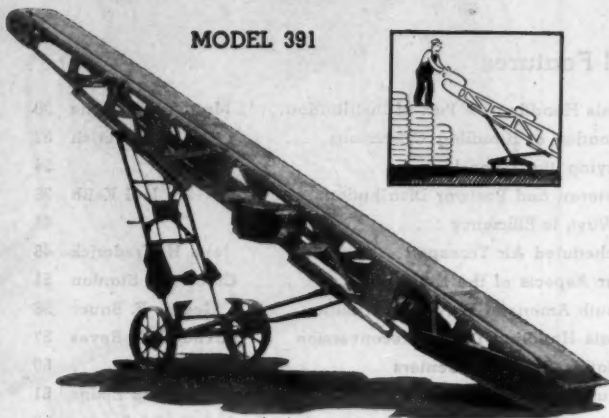
D and W takes the position that more efficient and economical distribution is the present major problem of modern business.



Reg. U.S. Pat. Off.

# SAVE MANPOWER... SPEED HANDLING...

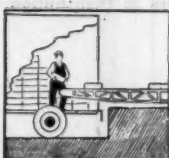
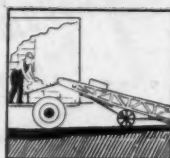
MODEL 391



## WITH THE "FEATHERWEIGHT" Freight Conveyor

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Backed by an organization of portable conveyor experts, these modern freight handling conveyors will save you time, money and manpower wherever goods must be moved.

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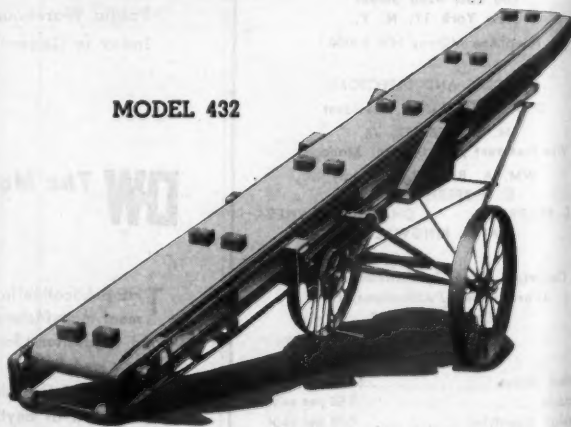
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## Materials Handling

WAR has made the world materials handling conscious. From New York to Calcutta and from San Francisco to Okinawa the armed forces have demonstrated in various ways the value of modern materials handling equipment and methods.

The problems of supply in this war have been staggering. There is nothing comparable in history. The variety and quantity of materials handled and transported; the geographical distances involved; the climatic changes encountered; the factors of time and timing; the risks taken; the obstacles overcome surpass anything ever attempted.

What has been accomplished could not have been done without modern mechanized handling equipment and new handling methods. The equipment was manufactured in this country and the methods were devised by American engineers and industrial specialists as members of the armed forces or consultants thereof.

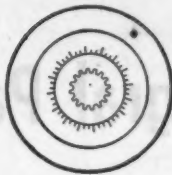
When hostilities end, these men, with their background of practical experience, their specialized knowledge, their adaptability, and the desire most of them are likely to have to be successful in civilian life, will represent an asset and a challenge to American industry.

How industry will meet this challenge, how it will use this asset, may affect not only industrial progress during the next generation and the lives of countless people, but also the trend of political economy in this country for many years to come.

This is a materials handling problem. It is the most vital and the most difficult materials handling problem industry has ever had to face. If the same intelligence, resolution and daring are applied to it that have been applied to the problems of supply during the war there is no reason why it cannot be solved. It calls for directed and coordinated effort, the pooling of resources and, if necessary, a willingness to make sacrifices. If these things are possible in time of war they are equally possible in time of peace.

If industry does not do the job, government will. If government does it, the job will be done expensively, bureaucratically and to the detriment of industry and the men involved. The choice is industry's.

## Editorial



"... around every circle another can be drawn ... every end is a beginning ..."

### ASME on Distribution

WE have been insisting for a long time that distribution begins with the movement of raw materials and ends only when a finished product has reached its ultimate destination, the final user or consumer.

Last August on this page, in discussing some of the basic needs for better distribution, we suggested, among other things, that broader concepts of distribution, and simplification and standardization of methods and practices are needed if distribution is to be made more efficient and economical.

In the light of this, it is particularly gratifying and encouraging to learn that the American Society of Mechanical Engineers, which has established many industrial standards, recently adopted the following definition:

"Distribution is the total of all activities involved in the progression of goods from the producer to the consumer. It includes warehousing, transportation, wholesale and retail marketing, advertising and a substantial part of research, engineering, accounting and financing."

The ASME is to be congratulated. It would be helpful if other organizations were to act similarly to clarify the meaning of distribution so that when the word is used it will have a similar meaning for everybody.

Certainly, if we are to have more things for more people through more efficient and economical distribution, simplification and standardization of commercial nomenclature would do a great deal to aid clear thinking, sound judgment and constructive action.

## Surpluses

THE total value of government-owned surpluses in materials and land, on the basis of their cost to the government, may reach an aggregate of 100 billion dollars, according to the Surplus Property Board's second quarterly statement to Congress issued last month. These surpluses consist of "a fantastic conglomeration of materials and land scattered all over the globe."

Alfred E. Howse, SPB administrator, advocates the need of a dual program, one to deal with consumer goods, and another to deal with plants and capital equipment.

The policy of the Board in disposing of war surpluses affects everybody in America. At present, presumably, it is intended to speed production of civilian goods, to guard against monopoly, and to stimulate employment. Fundamentally, there can be no major objection to such a policy.

But there is a great deal of political pressure at work in Washington, and the advocates of special interests are busy plotting and hatching various schemes. The great danger of the surplus war materials is not only that they represent a threat to the stability of markets, but also an opportunity to political visionaries and scoundrels to advance their ideological concepts and to promote their personal ambitions.

To some observers this is apparent already, especially with respect to the Board's policy of speed in regard to the disposal of surplus consumer goods. On the other hand, it is natural that the government should wish to dispose of such materials as quickly as it can while there is an active market because of shortages.

However, conditions vary in different industries. To the best of our knowledge and belief, no comprehensive survey has ever been made by the government as to the effect that the disposal of war surpluses may have on any specific industry. There have been conferences and discussions but no thorough study and analysis of consumer or industrial markets. Industry, also, has been remiss in this, and in the formulation of specific industry policies and programs. A more scientific treatment of the whole problem both by government and industry is needed.

# MATERIALS HANDLING . . .



By MATTHEW W. POTTS  
Materials Handling Editor

## An Integral Part of Distribution

**Materials handling begins with the movement of raw materials, and is a part of the distribution picture during every step of the distributive process until a finished product has reached its ultimate destination, the final user or consumer.**

WHEN we start with raw materials and try to plan the production of some product, it is necessary to establish an overall organization. Most of us do this more or less automatically without breaking the plan down into individual segments.

For some time past, DandW has been stressing that all steps in the movement of commodities from raw materials until a finished product reaches the ultimate user or consumer are integral parts of the overall function of distribution. Our analysis has shown that segments of the distribution picture may be classified broadly as materials handling, transportation, marketing, financing, warehousing, packing and packaging, service and maintenance, etc.

Each segment, in most cases, will fit into the picture of distribution at several points. For example, materials handling starts immediately with the raw materials regardless of what the material is. It must be handled from one point to another, and this does not include the phase of transportation. If a flow chart is made of a product, it will be found that materials handling is the connecting link between raw materials, semi-finished and finished products, warehousing, transportation, and sales to the ultimate consumer.

### Handling Tie-in

There is a tendency to consider materials handling as only one operation. The industrial engineer figuring plant layouts, looks at materials handling from the standpoint of what it can do to simplify his plant layout and conserve space. The production engineer or superintendent separates materials handling from the overall picture and treats the subject from the standpoint of what it will do to increase the productivity of his machines or his plant. The purchasing department knows of the subject of materials handling, but is not always able to see how it affects the cost of

distributing raw materials through the plant, and, after all, the purchasing department's job is to purchase supplies of the best quality at the lowest cost. The sales department is interested in marketing a product, and while it looks at containers and packages from the standpoint of eye appeal, it seldom realizes how the use of better materials handling methods will make it possible to reduce the overall cost of distribution and speed up the handling and storing of the completed products which are offered for sale.

### Examples Cited

The editorial pages of DandW have shown many actual applications of materials handling principles as well as many of the handling steps encountered in distribution. We have been specific in stating specific methods and savings that could be effected. The various types of equipment avail-

able have been adequately defined, described and their applications to various operations have been mentioned.

In doing this a consistent educational program has been developed for the benefit of all of the industries interested in distribution. Since this knowledge is available, it should not be difficult for all concerned to consider the benefits that can be obtained by using some type of standard materials handling equipment, wherever possible, and thus take advantage of the savings that can be effected by the use of hand trucks, conveyors, hoists, cranes, straddle trucks, street trucks and trailers, fork trucks, lift trucks, car pullers, car unloaders, portable elevators, barrel and pallet racks, and many other pieces of standard equipment which have been developed for specific operations and for a wide variety of industries and applications.

The architect, planning engineer, production engineer, purchasing

In packaging, the container selected affects the materials handling method which will be employed in the packaging department and in getting the product into distribution.

Courtesy of U. S. Coast Guard



agent, the traffic manager, plant superintendent, sales manager, and the head of the shipping department, must all look at the overall picture and integrate their materials handling operation in order to reduce total distribution costs.

### Integration of Steps

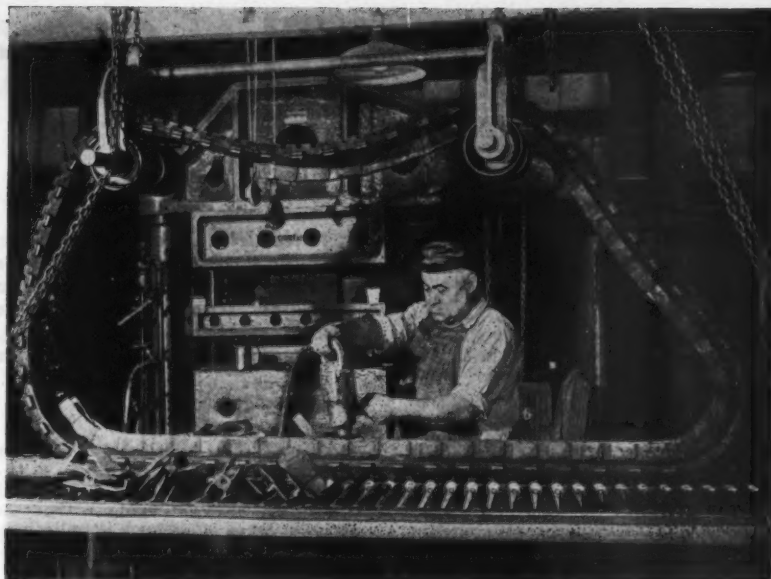
Let us consider that the product is complete and is now ready for marketing. At this point the question comes up regarding the type of package. The packaging engineer is called in. Work is started on the type of container for eye appeal. This immediately affects the materials handling method which will be employed in the packaging department in getting the product ready for the next step in distribution.

In addition, the bulk container must be decided upon. In designing this container, the packaging engineer should consider the various steps in distribution which the container must take before reaching the ultimate consumer. How will it be handled? How will it be stored? These questions have a direct bearing on the size, weight and strength of the container. The sales manager and the packaging engineer have to consider the possibility of unit loads in order to reduce costs as described in the article "Shipment of Palletized Unit Loads a Reality" by the writer, which appeared in the Jan., 1943, issue of *DandW*, and also the article by C. H. Barker, Jr., "Unit Load Shuttle Service Developed by Navy" which appeared in our May, 1945, issue.

From the experience gained in the application of these methods in the past three or four years, it has been

Management should be made conscious of the importance of materials handling operations and the need for the application of mechanical handling methods or better manual handling so as to reduce production costs.

*Courtesy of Automatic Transportation Co.*



*Courtesy of Goodyear.*

If a flow chart is made of a product, it will be found that materials handling is the connecting link between raw materials, semi-finished and finished products, warehousing transportation, and sales to the ultimate consumer.

found that pilferage has been reduced, insurance rates have been affected, better warehousing has been accomplished, fire hazards have been lessened, smaller inventories have been required, all because of the quicker handling of the supplies on hand.

Modern methods of handling are going to require architects and build-

ing designers to take into consideration the proper height of loading platforms, the location of loading docks, railroad sidings, the height of doors so that large truck and trailer units can enter a building. Strength of floors to permit handling of heavy loads, must be considered, and where required, a building must be designed for the installation of overhead cranes, monorail systems, etc.

### What's Ahead?

In the July, 1944, issue of this publication, the writer asked the question, "Where Do We Go From Here?" To date the materials handling industry as a whole has not started to formulate its plans, although individual companies, engineers and salesmen have gone into various industries and made recommendations which have materially reduced distribution costs. If the manufacturers of materials handling equipment are not going to do this work collectively for the benefit of all industry, then industry itself must take up the study of materials handling and work out its own solution of the problems which will confront them in the overall distribution of products from raw materials to consumers.

Management should be made conscious of the importance of materials handling operations and the need for the application of mechanical handling methods or better manual handling so as to reduce production costs, transportation costs, and marketing costs. Plant engineers, production superintendents, and even some plant managers, are familiar with the facts and what can be accomplished by better materials handling methods, but top management, including boards of directors, vice-presidents, the presi-

*(Continued on page 72)*



# The Coordination of

**T**HE type of materials handling equipment to use—conveyors, industrial tractors, overhead handling systems, lifts, pilers, cranes, low-lift trucks, high-lift trucks, etc.—depends upon the plant, and the problems it has to solve. Certain types and combinations of units work better in some plants than in others. The equipment must be “tailored” to requirements and this is not a job that can be done with a shotgun prescription.

Nevertheless, this does not nullify the importance of coordination nor negate the fact that many handling problems would no longer be problems

**H**ANDLING is more than an operational device. It is a problem-solving building factor if properly coordinated, a fact that receives too scant consideration because operational savings are given too much of a spotlight. Many handling problems would no longer be problems if management did an “all-out” coordinating job, and analyzed the present handling set-up.

objective; the piecemeal replacement of a unit here or there, the substitution of hand labor with a powered truck or conveyor made without a study of what effect such installations will have on all elements of operation,

2. Coordinate processes with handling.
3. Coordinate handling with storage.
4. Coordinate handling with packaging.
5. Coordinate handling with unloading.

Coordination that does not cover these phases is not “all-out” coordination and will not give the best handling results. In other words, handling efficiency presupposes more than the mere replacement of units with new or the substitution of manual with mechanical operations. It reaches its zenith only when the right equipment, the right package and the right unit load are used in the right places in the right way. For example, ideal coordination with the carrier could be attained if pallets carrying materials from carrier to receiving platform into raw storage, then

Straddle trucks can handle varied materials.



Photograph by courtesy of Carrier Co.

if management did an “all-out” coordinating job. Too many managements utilize only partial coordination of materials handling equipment because they do not focus on the whole picture. Effective handling coordination is the harmonious functioning of all operating elements under management’s supervision, each in its fit place and each making its cooperative contribution to efficient and economical output.

## Coordination Objective

In the early days of mechanical handling equipment, makers and users thought of these units only as substitutes for manpower. As time went on, units were developed that could be “tailored” to the particular job. That was the handling objective in its secondary stage. Now, a third stage in the development of handling equipment emphasizes coordination.

The better the handling equipment fits the job, the lower the handling cost but it can be considered a good fit only if it meshes properly with operations from the raw materials receiving platform to the outgoing carrier. Coordination is the over-all

may create unbalanced movement that does not beget maximum results.

A plant in operation may be compared with a car, each gear, valve and gadget coordinating as one multi-jointed unit. When this is not achieved, movement is below par, operating cost is high and breakdowns occur.

## Maximum Results

To get maximum results with your handling routine, you must:

1. Coordinate handling.

production departments, through assembly to finished production, warehouse, then to shipping room into outgoing carriers, the pallets accompanying the loads in transit facilitate handling by the receiver. This ideal may be seldom attained but you get what we mean by coordination with carriers.

## Must Mesh Properly

Each process in production operates on a given capacity and gears in a machine, they must mesh

# of Handling Operations

By FRED MERISH  
Special Correspondent

Too many managements use only partial coordination of materials handling equipment because they do not focus on the whole picture. Effective handling coordination is the harmonious functioning of all operating elements under management's supervision, each in its place and each making its cooperative contribution to efficient and economical output.

properly to maintain schedules and keep production costs at minimum. Because hand labor and mechanical operation on production are fairly well standardized from time studies and experience figures, inter-depart-

handling costs high, but production costs are also. Thus, a management has a double-barreled reason for putting coordination at the head of the list when analyzing its handling problems.



Versatile fork trucks transport welding rods and coils of wire. Photograph by courtesy of Elwell-Parker Electric Co.

mental production synchronizes fairly well and the bottle-necks that harass a management are usually due to poor coordination of materials handling with production output. When handling paces production, when loads are proportioned equally with production, each process moves at its designated pace, minimizing over-all operating cost.

Much is said and written about handling costs, but here too we have a coordination of movement between handling and production costs that is sometimes overlooked. One increases, decreases or stabilizes the other. Where coordination between handling and processing is poor, not only are

What should be done to get better coordination between handling and production? First things first, so make a cost analysis of your present set-up. Many plant managers keep close tabs on production efficiency with time-studies, materials requisitions and cost analyses, but few ever attempt time-studies on handling, nor do they know their handling costs or warehousing costs, either in toto or per handling unit or unit of production. To get the lowdown on your handling costs should be the first step.

Record results with cost-finding forms as you do on production operations, otherwise, you just guess. How many man-hours are spent handling materials and finished production? What's the cost? How many man-hours will be saved by mechanical handling? Will production speed up as a result and how much? What will the higher output mean in added profit and lower cost? The savings on handling labor and the increased profits from increased production in many plants will run into substantial sums.

## Space Saving

How much space can be saved, relieving congestion between operations, between machines and workers? Figure this cost according to the occupancy cost of every square foot of floor space taken up by "dead" storage under your present system. How much more room will you have around operations with an orderly, continuous flow along production lines assured by means of adequate handling equipment, eliminating cluttered conditions and bad production control?

"Dead" storage around processing machines creates hazards to operators, increases the risk of damage to stock, increases inventory cost because it ties up excess capital in raw materials. What will you save in breakage and damage to production? Even  
(Continued on page 44)

Motor bracket assembly department at the East Pittsburgh, Pa., plant of Westinghouse Electric Co.

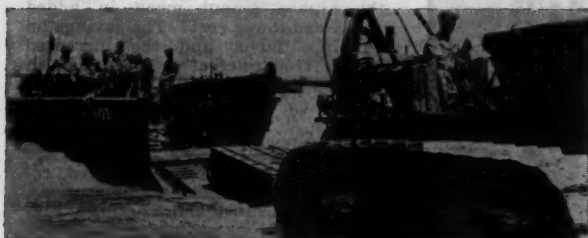


Pacific Theatre...

# DELIVERING



A D-18 tractor tows two sleds loaded with fuel from supply ship to shore.



This LCVP ran right up onto the beach. D-8 tractor is hitched up.

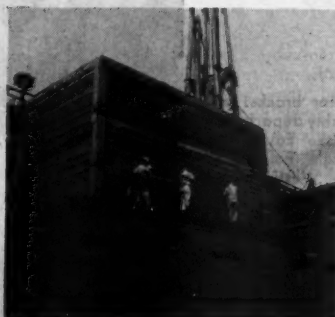


Three sleds of rations are towed in tandem by a D-8 tractor.

The most valuable unloading tool is the giant crane, most materials handling specialists in the service say.



Port Battalion men make unloading preparations on this Liberty ship even before it drops anchor at a Pacific port.



A floating "Washington" crane of 80 tons capacity is used to expedite unloading a truck into a waiting barge.





# THE GOODS! ... Atlantic Theatre



A crated armored vehicle, a nine-ton M-2 half track, is lifted from a freight car and carried to the nearby uncrating lot.

## UNPACKING ARMORED VEHICLES

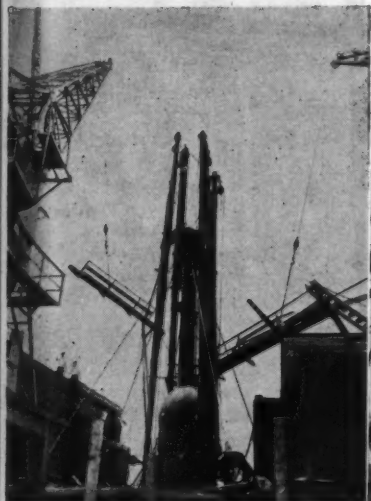
Armored vehicles present a complicated packing problem before shipment, and it's just as difficult to unpack them on arrival.



When the two caterpillar tractor cranes have delivered the crate to the uncrating lot, hooks are applied to the upper edge of the box.

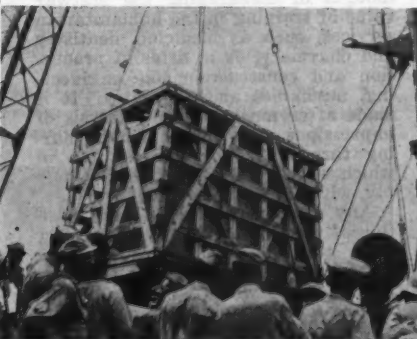


After packaged accessories are cared for, the vehicle is lifted from crate by a crane, and towed to the shops.



## WORLD'S UNLOADING RECORD

The world's unloading record is held by the men who unloaded this Liberty ship. A varied cargo, including deck load, was removed in record time thanks to modern materials handling techniques.



As soon as Liberty ship is tied to dock, the cranes go to work tearing up the temporary cat-walk built across deck-load.

The world's unloading record for ships of this size was set when this large crate, the last piece of cargo in the hold, was taken out.

The ship contained large rolls of wire, which, though difficult to handle, did not stop the crew from setting record.

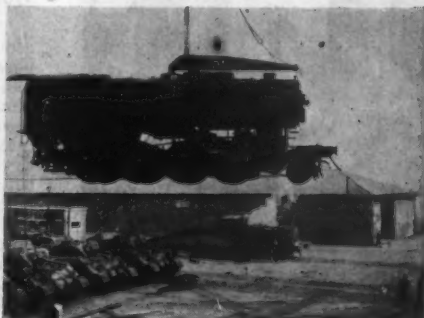


## LEFT:

Transportation corps amphibians, or "Ducks," take cargo from ship in the harbor of Le Harve, France.

## RIGHT:

A huge railroad locomotive which will soon draw supplies up to forward stock depots being unloaded.



# The Veteran and Postwar Distribution

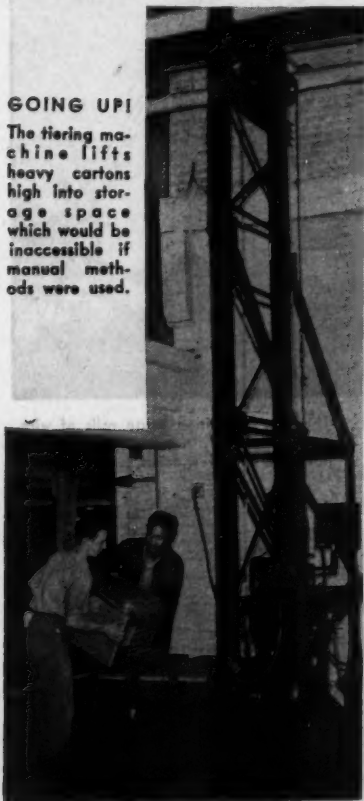
**Returning veterans believe that the postwar problem, like the prewar problem, primarily will be one of distribution. Their present training and experience in military and naval distribution will enable them to bring skills tempered in the crucible of conflict to bear upon the problems of civilian distribution.**

By JOEL KEITH  
Associate Editor

**O**F the manifold types of specialized training offered our fighting men by various branches of the

## GOING UP!

The tiering machine lifts heavy cartons high into storage space which would be inaccessible if manual methods were used.



armed forces, the most useful from the standpoints of benefit to the nation and of postwar utilization by the veteran will prove to be those which deal with the phases of distribution.

This statement is made with no thought of disparaging the postwar value of training in the humanitarian services, such as medicine, dentistry and pharmacy, or in fields of production and construction like engineering, mechanics and carpentry. It is made after much careful analysis of impressions garnered personally during three years of service, two of which were in the department of supply, with the U. S. Coast Guard.

Any attempt to evaluate the position of the veteran in postwar society must start with a consideration of his mental attitude toward the economic system under which we live. Briefly, I have found that the great majority of the fighting men with whom I have had contact regard it as a pretty good system, certainly as the best economic experiment ever tried by mankind.

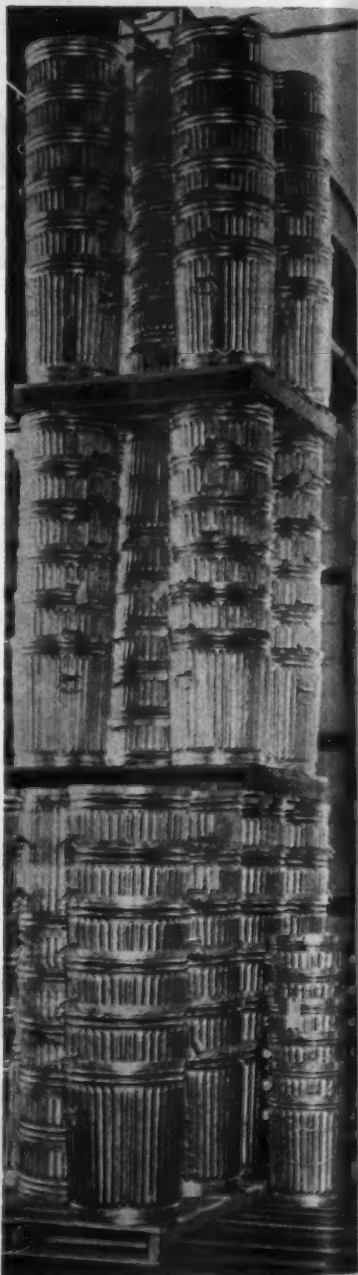
## Hard Facts

They were convinced by no abstract economic theories, but by hard and personal facts. They have seen the tools of war produced under the American system prove superior to those forged under the rule of a dictator. Many of them owe their lives to that superiority. They have sailed better ships, fired better guns, flown better planes, worn better uniforms, and eaten better food than any other fighting men in the world. These things they credit to the American system of free enterprise.

However, they do not regard our

economic system as perfect. They know, for they have seen, how well we can produce. But they have always known that America could do wonders with production. The former farmer remembers the not too distant past, when he was paid for plowing up wheat and slaughtering little pigs. An ex-machinist remembers being laid off, not because he couldn't produce enough automobile parts, but because

**PALLETIZED PAILS!** Even the humble, but very necessary garbage container lends itself to palletizing at the Coast Guard Supply Depot.



not enough people could afford to buy the finished product.

The veteran of the future believes that the postwar problem, like the prewar problem, primarily will be one of distribution. He shares this belief with many of the nation's top business executives. (See "The Postwar Challenge to Sales," by J. N. Bauman, *DandW*, June, 1945.) What makes the training and experience of the serviceman engaged so successfully in military distribution of such great significance is that he will be in a position to bring innumerable skills, acquired and tempered in the crucible of conflict, to bear upon the problem of civilian distribution.

### Distribution Problems

American soldiers and sailors of supply are not naive enough to believe that the problems presented by military distribution and civilian distribution are identical. Nevertheless, they feel that military distribution presents at least as tough a nut to crack as its civilian counterpart. Having "delivered the goods" under the stress of war, they feel that, within the limits of their specialties, they can do at least as good a job under peacetime conditions.

Let us take, for example, the field of materials handling. Long before the war, experts like *DandW*'s Matthew W. Potts urged the general adoption by industry of modern mechanical materials handling equipment. Many industrialists hesitated. For one thing, there was no large scale proof that mechanical materials handling equipment would be worth its weight in profits. For another, freight handling had usually attracted unskilled men, many of whom

ONE OF MANY USES of this coast guard fork truck is the unloading of materials from trailers directly onto pallets. The pallets are then transported to the storage space and stacked in the same operation.



"MEN trained in modern distribution methods by the armed services will provide the nucleus of competent personnel which will be required by industry when it turns from the tasks of war to the problems of peace. These men will be required because they have demonstrated that the methods they have learned in the services are more efficient, more economical, and more practical than any systems of distribution in general industrial use up to the time of the war."

Lt. Comdr. H. M. Harger,  
Executive Officer, USCG Supply Depot.

were incompetent to operate expensive equipment.

At present, all branches of the armed forces are demonstrating that far from being a luxury, modern materials handling equipment is a necessity for efficient distribution.

It is interesting to note that military distribution, like military production, is a result of evolution. While the infantry was drilling with beer-can mortars and wooden guns, during the early days of the war, the services of supply were sweating it out with hand trucks and manpower.

### Modern Methods Pay

I became attached to the Coast Guard Supply Depot before that organization had completed its modernization program. At first, we used the same time-wasting, man-exhausting methods which were, and are today, in use in many commercial organizations. Later, after the acquisition of modern equipment, we saw one man with a platform lift truck handle a palletized load for shipment overseas in 50 per cent of the time it used to take five men to handle the loose cartons on hand trucks.

We applied assembly-line techniques to clothing inspection, and were able to receive, unpack, inspect, repack, stencil and ship cartons of clothing in a continuous operation.

One of the coast guard warehouses was a multiple storied building, and much time was lost in loading and reloading elevators to carry merchandise from the inspection to the storage floor. With the advent of the pallet, we were able to truck a load to the elevator on the inspection floor and pick it off on the storage floor in a matter of seconds. By establishing a system of one-way elevator traffic, a smooth continuity of inter-warehouse storage was attained.

Like the navy, the coast guard applied modern materials handling techniques to office work. (See "Something New in Filing," *DandW*, June, 1945.) One accounting section, consisting of an officer, seven petty officers and 12 seamen, was done away with entirely when its work was placed on International Business Machines. Only three additional girls were needed to take over the extra work on the machines.

In all cases, it was found that men relieved of specific tasks in the office and in the warehouse through the installation of mechanized equipment could be reassigned to more vital duties. The net result was that the efficiency of the entire unit was vastly increased.

### Lower Distribution Costs

That these and similar savings of manpower and time, if applied to industry, would result in lower distribution costs, lower consumer costs, and perhaps in a more balanced economy is the belief and hope of most men in the services of supply.

The question of competent personnel for industrial freight handling has plagued traffic managers and warehousemen for years. The serviceman's answer is this: "Take the weight out of freight handling through modern materials handling equipment, and after the war, you'll have all the trained, competent men you can use."

I have met men from a wide variety of civilian vocations assigned to materials handling in various branches of the service. If they were working on the basis of a few hand trucks and plenty of manpower, as was often the case in the early days of the war, most of them loathed the work. When they were entrusted with efficient and interesting equipment to aid them, many men who formerly would never



have considered materials handling as a possible vocation began to change their opinions.

"This beats sitting behind a desk all day," a fork truck operator who had been an insurance clerk in civilian life told me.

### Exactng School

As in the field of materials handling, other thoroughly qualified men have obtained training and experience at all levels for other distribution ac-

tivities, such as transportation and warehousing. The wise industrialist will draw many distribution executives from the ranks of supply officers, and they will be executives who have learned to handle men and materials in the most exacting school in the world.

One thought of caution should be kept in mind by the businessman who intends to supplement his distribution organization with ex-servicemen. Men who have used the most modern dis-

tribution tactics effectively will refuse to revert to the primitive methods many of them left behind in civilian life. The industrialist who uses modern materials handling, transportation, and warehousing methods will collect dividends both in cash, and in the knowledge that he will enable his organization to compete more effectively for postwar markets. In addition, he will be making a direct contribution toward the establishment, on a national scale, of more efficient and economical distribution.

## American Standards Assn. Recommends National Safety Color Code

**U**RGED by the office of the Quartermaster General, the American Standards Assn. has formulated and will submit for review by army, navy, and industrial representatives a national safety color code, the War Department announced recently. Work on the plan has been progressing for nearly a year.

In Apr. 1944, Col. F. B. L. Myer then deputy chief of the organizing, planning, and control division of the Quartermaster General's office, conceived the idea of national standards in a safety color code. His plan was approved by the proper army authorities, and submitted to the American Standards Assn.

Color schemes for the identification of various hazards have been developed in the past by a large number of industrial plants, but these have been individual conceptions, differing so widely that their object suffers from lack of uniformity. As a result of this variance, spontaneity of action in time of emergency is lost, particularly by employees who move from one plant to another.

Early experiments with carefully chosen paint hues used as warning symbols showed such remarkable improvements in factory safety and efficiency that the results had a definite bearing on the selection of colors in the code.

Red, green, yellow, white and black and combinations thereof, were the basic colors finally agreed upon. Red is to be the basic color for the identification of fire protection equipment and apparatus, danger, and stop signals. Green shall be the basic color for designating safety, the location of first aid equipment (not including fire fighting equipment), first aid dispensaries, stretchers, gas masks, safety starting buttons, the signal for traffic to proceed, and all other instances where safety is to be designated. Yellow shall be the basic color for designating caution and for marking physical hazards, such as obstacles which may cause stumbling, projections of

machinery which may catch in clothes, pillars, or any hazards that may be bumped into, caught between, or fallen into, or any instances where caution should be exercised.

As with the other colors, yellow with black stripes or a black and yellow checkered design is recommended where local conditions call for a more

striking symbol to gain attention. Black, white, or a combination of these two shall be the basic colors for designating housekeeping, sanitation, and traffic markings. Solid black, solid white, or either striped or checked combinations are recommended for use in marking direction signals, corners, passageways, stairways, dead ends, traffic guides, refuse cans, etc.

The basic colors have been kept to a minimum because it was believed that too many color identifications constantly in the field of vision would be confusing.

The code has been designed with great care so that it will not conflict with any present standardized signals or symbols in use in sea or air navigation, or in railroad transportation.

Col. Myer was prompted to suggest a universal safety color code by the fact that the Quartermaster Corps has a wide-spread problem of safety. Quartermaster depots with military and civilian personnel numbering thousands, are scattered all over the U. S. Fires or accidents in any of these vast depots would hold up shipments of vital supplies to the fighting fronts. Since the military personnel is frequently shifted from one depot to another, and new and untrained soldiers are constantly being assigned, the value of safety standardization between depots assumes great importance. Industry, today, with its shifting manpower is confronted with the same problem.

The American Standards Assn. in 1927, unified on a national scale the colors now used in traffic lights. It is a federation of trade, technical, and governmental groups combined for the purpose of developing national standards that are applicable and satisfactory to all groups. In the 20 years of its existence, the American Standards Assn. has created more than 700 industrial national standards.

### DandW to Become Distribution Age

This is the last issue that *DandW* will be used as the name of this publication. With the August issue *DandW* will appear as *DISTRIBUTION AGE*, the magazine that integrates all phases of distribution. It will be a better coordinated and more serviceable product.

As *DISTRIBUTION AGE* we shall continue to publish constructive and original material on all aspects of physical distribution, including materials handling, transportation, warehousing, marketing, packing and packaging, finance and insurance, service and maintenance and all other facilities that are integral parts of the distributive process.

*DISTRIBUTION AGE* will continue to be the publication in which shipper, carrier, receiver, warehouseman and equipment manufacturer meet on common ground to obtain and exchange ideas and suggestions for more efficient and economical distribution of raw materials and finished products.

A statement of our purpose and policy will appear next month.—  
The Editor.

# Here Today -

A massive earthmoving fleet of International Diesel TracTractors, at Port Hueneme, Calif., ready for shipment overseas to the Seabees.

**Here today. There tomorrow.** It's an ever-changing picture, the movement of International TracTractors to the battlefield and on the battlefield.

The Navy's Seabees are making history with these big crawlers. Wherever these TracTractors go, manned by Seabees who are skilled in every phase of construction and earthmoving know-how, they are helping speed Victory. Their record is a record of American valor, American planning, American production.

When the war is over and International TracTractors, Wheel Tractors, Engines and Power Units are again plentiful for civilian use, look to this equipment for the answer to your power needs.

These tractors and engines are sold and serviced by a nation-wide International Industrial Power Distributor organization.



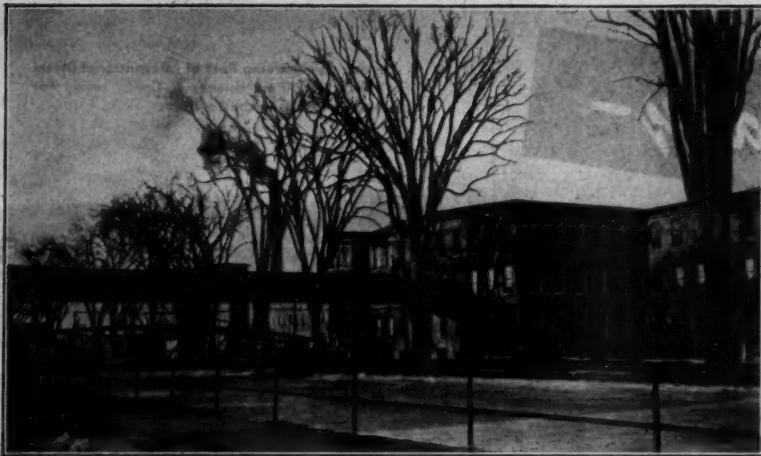
**INTERNATIONAL HARVESTER COMPANY**  
180 North Michigan Avenue Chicago 1, Illinois

Rows of International TracTractors with cranes. Duty in the fighting zones will be their next assignment.

# There Tomorrow

Airfield runways are completed in a hurry with equipment like this. International Diesel TracTractor, with sheep-foot roller, working for the Seabees in the South Pacific.—Official U. S. Navy Photo.

## INTERNATIONAL INDUSTRIAL POWER



AMERICA'S oldest belt conveyor, still in service at the Nashua Mfg. Co. mill, Nashua, N. H.

## *oldest belt conveyor still rolling on after 53 years of continuous service*

The nation's oldest industrial belt conveyor, a veteran of 53 years of steady operation, is still in service at the mill of the Nashua Mfg. Co., Nashua, N. H. Originally constructed in the spring of 1892, the conveyor had a length of 230 ft. Within the last ten years, extensions at both ends have brought the length up to 500 ft.

Purpose of the conveyor is to carry rolls of cloth from the burling room, two floors below mill yard level, to the napping and finishing department on the second floor of the mill. The cloth consists of blanketing material in 100 lb. bolts.

Without the belt conveyor, it would be necessary to load the rolls on trucks, unload them into an elevator which would take them to mill yard level, transport them across the canal which runs through the mill yard, and load them onto another elevator to be taken to the second floor of the mill.

### **Hutton Wheel Plant Starts Production**

Production of a full line of industrial and wheelbarrow type wheels has been started by the Hutton Wheel Corp., St. Louis, announced W. L. Hutton, president, recently. Equipped with pneumatic rubber tires, the wheels are for use on hand trucks, portable machinery, and casters. Sizes range from 3 in. to 16 in. The wheels are being offered directly to users, to jobbers, and to wholesalers.

## **Comprehensive Maximum Storage Rates Consolidate Present OPA Standards**

A comprehensive regulation covering maximum storage rates and charges for services rendered by public storage warehouses, and service charges rendered at terminals, all previously established in other regulations, was announced recently by the OPA.

The purpose of the new regulation, effective June 1, is to consolidate the present rates and charges in convenient form for users. Generally speaking, no changes in maximum rates and charges are made.

The basic pricing provisions, originated in the general maximum price regulation, which covered most of the storage and terminal service field, are retained.

There are two significant new provisions.

1. All sellers subject to the regulation are required to file with OPA district offices two copies of statements of their maximum prices with explanations as to how these ceilings were determined, whether by actual service performed in March, 1942, or by other means. These statements are due by Aug. 30.

The general maximum price regulation required keeping of records, and suppliers of services who have kept those records up to date should have no difficulty in complying with the

### **Surplus Property Rules Modified to Speed Sales**

To speed the sale of surplus goods, the office of surplus property of the Department of Commerce recently has modified its sales procedures and given its eleven regional offices greater latitude in their operations.

Whereas formerly it was required that property with a total acquisition cost of \$1,000 be listed in the "Surplus Reporter," effective immediately such listing is necessary only in the case of items of a "significant" amount. In general, this means that property having a value of \$5,000 or less and which can be absorbed in the regional market will not be advertised in the "Surplus Reporter," but will be offered by special listings as soon as it is ready for sale. Widespread publicity of offerings will still be the rule.

Regional directors have been told that as a rule-of-thumb they should regard the highest bid offered as the market value of the property. In other words, the high bid will generally be accepted, assuming that there has been proper circularization of the offering.

price-filing requirements, OPA said. In the event filings are incomplete or inaccurate, regional OPA offices are empowered to set prices in line with requirements of the regulation.

2. Provisions for determining prices for new services that a seller cannot price by comparison with his own or his competitor's March, 1942, prices are liberalized to permit a seller to begin service at the price that he proposes to OPA, subject to subsequent adjustment. Applications for price determinations are to be filed with regional OPA offices, rather than with OPA district offices as in the past.

### **Paper Sack Restriction**

Commercial use of paper shipping sacks for packaging apples, dessert preparation, and pet food has been restricted to the number of paper sacks used for that purpose in 1944, the War Production Board paper division announced recently.

The limitation was effected by an amendment of limitation order L-278, which restricts the manufacture and use of shipping sacks made from shipping-sack paper, and was necessary because of the critical shortage of kraft paper, paper division officials said.



# POWER

IT'S STEADY GOING, ALL  
DAY LONG, WHEN THE  
BATTERIES ARE EXIDES



**T**here is no slowing down between shifts when unit loads are handled by Exide-powered electric trucks. Lifting, carrying and stacking progress smoothly and dependably, hour after hour, for when Exides supply the motive power sustained speeds are assured straight through to the end of the day.

In plants and warehouses throughout the country, Exide-equipped electric trucks are expediting materials handling, conserving manpower, and cutting costs. Exides are amply provided with the extra power required for today's exacting needs. And their rugged construction keeps them steadily on the job. For dependability, long-life and ease of maintenance, you can always count on Exide Batteries.

Write us for a **FREE** copy of the bulletin "Unit Loads," prepared by The Electric Industrial Truck Association. It tells how to cut handling costs up to 50% ... covers latest developments in materials handling ... and includes actual case histories.

# POWER



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THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32  
Exide Batteries of Canada, Limited, Toronto

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D and W, July, 1945—41

# Eight Ways to Efficiency

A materials handling milestone, the eight-way pallet used by the U. S. Navy's Bureau of Ordnance, affords four basic handling advantages in all phases of palletized operations.

**A**CCESIBLE from any side or corner, this new laboratory-tested piece of handling equipment is a highly significant variation on the

open highway trailers, can be loaded or unloaded from any direction by equipment either on ground level or platform level, an advantage which

the like. For example, if columns are 15 ft. apart center to center, it is impractical to stow more than three regular, 35 in. x 45½ in., pallets between them, and nearly 4 ft. of space is wasted. However, three eight-way pallets can be placed the wide way and one the narrow way.

In irregularly shaped warehouses with alcoves or bays, similar combinations frequently can be used to accommodate a greater number of loads than could be stowed with two-way pallets. Also, it may be convenient to pick up such pallets from the narrow side and take them through spaces that would be too small for regular pallets.

In shiploading the variety of patterns made possible often permits unit loads to be stowed in spots that would otherwise have to be filled with loose cargo.

Important also are the new carloading patterns that have been developed. Eight-way pallets of the 35 in. x 45½ in. size will fit into a freight car two abreast the 45½ in. way, like regular pallets, or three abreast the 35 in.



Unit loads formed on steel eight-way pallets have proved to be so strong that they can be suspended upside down in mid air without showing any signs of failure. This load is bound to the pallet by athwart-ships as well as fore and aft strapping.

fork truck pallet theme. Many of the most universal problems of materials handling are eliminated because of the wide application of its four primary advantages: versatility in handling, flexibility of stowage arrangements (with rectangular pallets), reduction of aisle space required, and strengthening of unit loads.

(1) An eight-way pallet set down from one direction may be picked up from another, so that removal of unit loads need not be a reversal of the placement process. For general handling this means easy maneuverability in confined spaces such as are commonly found at the end of production lines, in crowded aisles, or on narrow loading platforms.

This is especially valuable in warehouses with a rapid turnover where the position of the aisles fluctuates and where stows are apt to be buried unless they are accessible from more than one side. It is also useful in lighter loading and shiploading because it eliminates the perplexing question of which way to face the stringers in each section of the hold.

Carloading is facilitated by the eight-way feature. Flat cars, and also

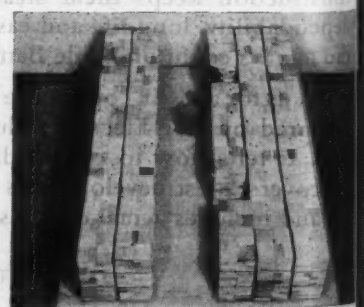
Eight-way pallets are especially valuable with flat cars or open highway trailers, because the pallets can be loaded from any direction, either from platform level or ground level.



becomes important if the cars, or trailers, are used in a congested area. When box cars are being loaded with such items as ammunition in tanks, which often require that all the units face the same way, it is handy to be able to set pallets fore and aft into the door area without need for dunnage on the deck. Also, when a fork truck on ground level is feeding loads to a hand pallet truck in the car, the hand truck can run them directly into position without having to turn around.

(2) Eight-way entry enables rectangular pallets to be used in a variety of stowage patterns that would be impossible if all the pallets had to be facing the same way. This feature can be a real space saver in warehouses having structural disadvantages such as columns, alcoves, and

A 4000 lb. fork truck can operate in a 8 ft. aisle without cross aisles, provided occasional 4 ft. spaces are left clear to permit corner entry into some of the unit loads. This is equivalent to stowing eight stacks of pallet loads in a 12 ft. aisle.



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Important in carloading is the fact that BuOrd's eight-way 35 in. x 45½ in. pallet can be loaded either two abreast or three abreast provided overlap is small. A wide range of patterns are possible.

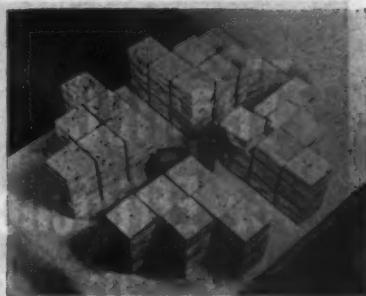
way. The latter condition requires a freight car 9 ft. 2 in. wide and a pallet load with an overlap of not more than ½ in. As a result, car capacity may be utilized more completely than was previously possible with this size of pallet.

If the unit loads have no overlap, as many as 93 will fit into a standard 40 ft. 6 in. freight car so snugly that vir-

tually no bracing will be required. Even with 1½ in. of overlap on each of the 35 in. sides, 87 loads can be put into a car.

By permitting 35 in. x 45½ in. pallets to be handled from either side, the eight-way feature has made important contributions to truckloading. Two units can be set into the truck the narrow way or one the wide way and one the narrow, making possible many different loading arrangements. (See *The Palletizer*, June, 1945, published by the Naval Ordnance Materials Handling Laboratory, U. S. Naval Ammunition Depot, Hingham, Mass.)

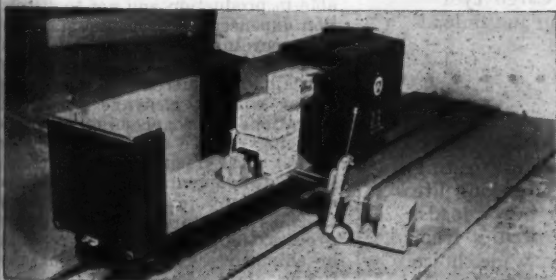
(3) Less handling space is required because a fork truck need make only a half turn from an aisle to enter the corner of an eight-way pallet. Conse-



The average 4000 lb. capacity fork truck can enter an eight-way pallet on a diagonal at the intersection of two 7 ft. aisles. When the corner stow has been removed, the ones on either side of it are readily accessible.

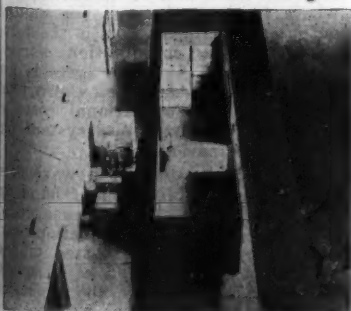


In positioning the last pallets in a freight car the eight-way feature is useful as it enables forks to get under the corner of the unit and swing it around. The added strength offered by steel or part steel construction helps here.



When a box car is loaded from ground level by a fork truck and a transporter, it is convenient for the transporter, to drive the units into position without turning them around first.

Where cars must be unloaded at platforms which are too narrow to permit easy operation of equipment to and from the car, a transporter can easily feed a fork truck with eight-way pallet loads.



quently, in place of the 12 ft. to 14 ft. aisle required for a 4000 lb. capacity fork truck handling two-way 48 in. x 48 in. pallets, 7 ft. is ample provided that there are cross aisles of the same width to expose the corners of some of the pallets. Where cross aisles are not desired, eight-way pallets can be handled from an 8 ft. aisle provided there are occasional 4 ft. gaps on one side of the aisle to permit corner entry. After one row has been removed there will be a regular 12 ft. aisle.

The value of corner entry is greatly increased if a fork truck can come in from a wide variety of angles. Three factors govern its ability to do so: narrow forks, slender vertical supports in the pallet, and wide clearance between the vertical supports. Under proper conditions a skillful operator

can find many uses for this eight-way feature.

(4) Stronger unit loads are possible with eight-way pallets, since material can easily be bound to them by athwartships straps as well as by fore and aft straps. Good athwartships strapping may eliminate the need for swaybracing in freight cars, simplifying loading and unloading operations. In ships where units are apt to receive rough handling and are always subject to considerable lateral stress as the vessel rolls, this added strength is a welcome safety factor.

Under the guidance of the Naval Ordnance Materials Handling Laboratory a variety of experimental pallets have been built of wood or metal, or both, using rivets, bolts, welds, and even certain new types of adhesives. All are designed to be handled by fork trucks, hand pallet trucks, and cranes. The best of these pallets can be expected not only to provide new conveniences in handling, but to last a lot longer than the wooden ones in service today.



# Teamed for Efficiency in Handling Problems



## PORTABLE WHEEL CONVEYOR

A flexible gravity conveyor that is finding ever-growing use solving material handling problems in all types of industries. Sturdy and lightweight, it can be set up quickly, operates smoothly and easily. Available in eight standard models, depending on width and number of wheels per foot.



## POWER BELT CONVEYORS

A complete line . . . four standard designs. Portable Power Booster (24 models) — a heavy duty mechanical stevedore for quick handling of packaged materials. Stevedore Jr. (2 models) for medium duty with patented Rapid-lock supports. Floorveyor — for floor to floor operations. Cargoveyor — designed for quick loading and unloading of airplane cargoes.



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Steel-forged with exclusive "Rapid-Flame-Hardening" process of treating swivel raceways. This insures long life and easy swiveling under heavy loads. Over 200 models with capacities from 250 to 2500 lbs. per caster. Wide choice of wheel and bearing types.



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Both floor trucks and two-wheel hand trucks for use in moving materials from one place to another. Durable and easy to handle, they are carefully constructed to meet all requirements for efficient handling.



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## Coordination Of Handling

(Continued from page 33)

where the product is not fragile, a 5 ft. drop on a concrete floor does it any good and such lapses are common where hand labor or inadequate equipment is used.

## Skilled Wages

Are you paying skilled wages for handling? Surveys in many plants will disclose that high-priced man power can be released from handling materials and in-process goods by installing mechanical equipment, reducing handling costs as much as 50 percent. Lifting and carrying even light loads produce fatigue and reduce output, begetting poor coordination of handling with processing where workers must handle their own output.

After you have broken down your handling operations in line with the foregoing and have arrived at some idea of their cost, consult a material handling engineer to get some idea of what a new set-up will do when all elements are properly coordinated. Of course, this means a complete overhaul of your handling set-up before if you want to get the most out of postwar prosperity, a thorough housecleaning of handling routine is a "must" as soon as conditions make it work feasible.

Pre-process and in-process distribution, or the handling of products before and between processes, from the standpoint of costing, may be chargeable to production and not to distribution expense, but from the standpoint of coordination, pre-process, in-process and post-process distribution must be considered as one moving factor without cleavage because operations from incoming carrier to outgoing carrier must be coordinated to get best results. Moreover, the same fundamentals and analytical studies apply to all handling operations, raw storage, production in process, finished goods warehousing or shipment, whether in a manufacturing plant, wholesale house, public warehouse, railroad, marine or air terminal.

## Costing Operations

Handling operations must be costed for each main unit of operation, and where feasible, the cost per unit of output ascertained. This is the foundation for a coordination survey. Knowing total handling costs is not enough. You must break down total costs into main operational costs in order to re-design your system for better coordination.

Excess labor used in a warehouse due to poor coordination of handling facilities will "up" warehouse costs just as it does on the production floor, and although space is costed on the cubic foot basis instead of a square foot basis in a factory, the inefficient utilization of this space increases

warehouse costs and the over-all cost of distribution.

The right handling equipment in the right place will often find room enough to increase cubic capacity to pay for the installation. Waste space around ceilings, disorderly arrangement, too much aisle space, floor replacements, bad spotting of heavy loads, heavy, unpileable objects, keep warehouse costs high, a condition that can be rectified with hoisting apparatus, tiering machines, and low-headroom bridge cranes to cover open areas adequately.

#### Touches Every Operation

"Dead" storage around processing machines prevents an even flow of raw materials from storage. Schedules are disrupted and this increases handling costs from storage to process and from finished production to warehouse or loading platform. The elimination of "dead" storage around processing machines with coordinated handling procedure will step up the tempo of production, reduce in-process time and decrease the average inventory needed for operations, resulting in a saving of storage space and less capital tied up in goods in process, releasing this excess as working capital to discount bills and for other business needs.

With the high tax rates in effect, working capital is hit hard in many organizations and any increase in "dead money" is welcomed. Thus, the effect of handling coordination touches every field of business operation. Too many managements consider only the direct physical aspects of handling, view it only in relation to the job it is doing when it should be considered in an inter-relationship to other phases of operation and coordinated for maximum effectiveness. This is possible only when handling is planned as one coordinating process from incoming carrier to outgoing carrier. It can't stop at the delivery of raw materials to process and then pick up the thread again when production is completed. It may be done when costing distribution expense in a factory.

#### Check Travel Routes

Check your travel routes. Are they the shortest distance between two points? Maybe a re-alignment of processing machines or departments will provide better coordination of production and handling and reduce travel time from raw storage and to shipping department or warehouse. With reconversion on the way, many managements must replace old machines with new, or re-align layouts and this reconstruction should be done with the mind on handling coordination.

Smooth transportation of raw storage and finished stock is a goal beyond the horizon for some managements because of rejects and seconds caused by traffic hazards, which may be minimized with improved handling. Poor handling disrupts operation, production schedules are thrown off the beam when handling from and to yard

(Continued on page 87)

HANDLING+Processing+HANDLING+Assembling+HANDLING  
+Packing+HANDLING+Storage+HANDLING

HANDLING—the Common Denominator of PRODUCTION



LET MEN DIRECT POWER—NOT GENERATE IT

**Handling is everything** in storage, warehouse, dock and terminal operations. Since moving materials is the primary function of such operations, only the most efficient handling system can make them profitable and effective.

The Towmotor Material Handling Analysis Guide suggests and illustrates practical ways of developing an efficient handling system. Write for your copy today.



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D and W, July, 1945—45

# Non-Scheduled Air Transport

## Part 1—Proposed Services

**It must be borne in mind that most of the air cargo developed by any carrier will be new business. Never in the history of transportation has it failed to happen that a new agency has developed its own business: business that did not exist before. Air cargo transportation, scheduled and non-scheduled, will offer opportunities for expanding markets; for bringing new commodities into different markets; for changing the form in which many products are now shipped.**

**T**HERE are eighty-seven applications for certificates of convenience and necessity to operate non-scheduled services of one type or another already on file with the Civil Aeronautics Board. Most of them,

of Richmond, Washington, Boston, Pittsburgh, Milwaukee, and Chicago. Three desire to transport persons and property, while three confine their applications to cargo only.

Seven taxi service applicants hope



Loading the Fairchild Packet, latest army transport, with bulky cargo is simple because of the aerial freighter's straight sides. There are no obstacles such as sharp corners or curved sides to hinder loading.

however, are not strictly for air cargo operations. Of these, 29 are "grandfather applications," proposing the same type of operation carried on prior to the passage of the Civil Aeronautics Act of 1938. Most of these applications were filed by so-called "fixed base operators," now known as "airport service operators" and cover proposals to continue in charter flight operations chiefly of passengers, sight-seeing services, crop dusting, aerial photography, aerial advertising, instructional flying and the like.

Of the new service applications, some 25 are for services to be rendered by conventional type airplanes, and 27 by helicopters or other non-conventional types of equipment. The total number of services proposed may be classified as shown on page 48.

The six department stores propose to employ helicopters and propose operations within a radius of 100 miles

By JOHN H. FREDERICK

Air Cargo Editor

to give air taxi service with helicopters or similar craft. One operator proposes to operate within a 10-mile radius of Washington; two specify that they will operate in Boston and to points in New England and New York State; a Michigan applicant requests permission to fly anywhere in that state; a similar state proposal comes from Arkansas; Yellow and Checker Cab of San Francisco asks for a certificate authorizing service "between points and places in California, Oregon, Washington, Nevada, Idaho and Arizona."

### HHG by Air

Three transfer and storage operators propose helicopter or other non-conventional types but the other five applicants in this group specify that they will use conventional types of aircraft. Four specify that they wish to carry household goods only; two would transport household goods, office furniture and general commodities; two desire to transport any type of cargo without limitation. Two propose operations from New York and Boston respectively to the rest of the United States; one desires to transport property anywhere in the United States; one requests operational rights between Arkansas, Tennessee and Mississippi on the one hand, and states generally south of the Ohio River and east of the Texas-Louisiana boundary, but including Kansas, Texas, Nebraska, Missouri and Michigan.

In addition to the two main doors which form the rear of the fuselage, there is a door at the forward end and one on the left side which may be used to permit simultaneous loading and unloading of small cargo. Capacity of the Packet is 2312 cu. ft. of freight.







*Your Future rides in the Air!*

TEST NOW AND PLAN NOW  
FOR POSTWAR USE OF

# AIRFREIGHT

Air shipping will be an integral part of American enterprise after the war. Since Pearl Harbor, air transport on a vast scale, of almost every conceivable kind of cargo, has become commonplace with our armed forces. Foresighted business men already have taken stock of their shipping policies in the light of air transportation's exclusive and unprecedented advantages. They are not merely comparing point-to-point charges. They are studying new marketing and merchandising opportunities made possible only by air transportation.

American Airlines' Airfreight is a preview of the air shipping future. Its operation enables shippers to plan and test their postwar markets, methods and possibilities for profit. This low-cost air service is now available, although government priorities naturally get right-of-way.

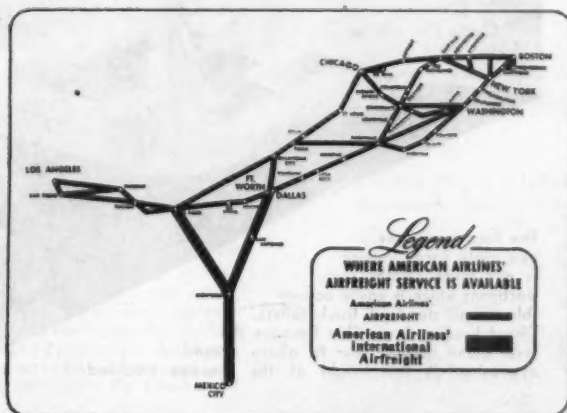
To help you make Airfreight work for you, American has set up a staff of sales engineers and research experts. They're at your service.

Write NOW to American Airlines' Airfreight Division, 100 East 42nd Street, New York 17, N. Y.

Save precious time on shipments to Mexico. American Airlines' International Airfreight is now available daily to and from Monterrey and Mexico City.

**AMERICAN AIRLINES Inc.**

THE NATIONAL AND INTERNATIONAL ROUTE OF THE FLAGSHIPS



gan; one suggests a territory north of a line from Washington, D. C. to St. Louis, and east of Omaha, Nebr.; two propose all places and points in New York, New Jersey, Massachusetts, Rhode Island, Connecticut, and all places in the United States.

Those who wish to transport special commodities include applications to carry automobiles, automobile parts equipment and accessories; feed, flowers, drugs and associated commodities; general merchandise; a fly-away service to carry aircraft from producer to purchaser; fish and fish products, westbound with any property in the reverse direction; armored plane service for valuables; heavy commodities such as boats, machinery, airplane wings, etc. Generally speaking, the proposed scope of operations of these applicants is very wide, several embracing the entire United States.

Of the 25 general service applications, four are for non-conventional and the rest for conventional type aircraft. Seven of these applicants are motor truck operators at present. In terms of territorial extent these applications vary greatly, but may be divided into the following rough general classes: (1) regional applications, specifying all states east of the Mississippi, or New England and Middle Atlantic states, or a single state; (2) those that embrace virtually the entire United States, including those from limited areas, such as New York, New England to the rest of United States; and (3) those that specify a few distant cities only thus producing what has been characterized as a "string pattern" of proposed operation. Four of the motor truck applications would virtually parallel their trucking routes.

### Diversity of Ideas

This brief review of the applications of the non-scheduled operators, present and prospective, shows a considerable diversity of ideas on at least two points: (1) the degree of speciali-

### Proposed Air Services

Ambulance or funeral .....	2
Sightseeing .....	2
Department store delivery .....	6
Taxi .....	7
Transfer and storage .....	8
Special commodities .....	10
General service—airport based .....	19
General service—other than airport based .....	25
Other services, unclassified .....	8
Total services .....	87

zation; and (2) the extent of the areas to be served by air carriers. Perhaps it is not surprising that the ideas expressed or implied in their proposals reflect concepts of organization derived from the past experience of the motor trucking industry. Many of the proposals are for the same types of commodity specialization, and show the same ideas regarding territorial extent that have developed in the experience of motor truck operators.

Many of the special commodity groups proposed for carriage by air require specialized equipment, or some specialized service other than the mere act of hauling, or involve some particular operating conditions, such as absence of back-hauls, or variations in length of haul. In this respect they are very much like the special commodity motor carriers and all such factors are bound to exert an influence upon the extent of the territory they must seek to serve, the costs of operation, the safety regulation, and the system of charges imposed. For example, household goods cannot move over regular routes; tank planes will involve much empty mileage in their operation; the volume of physical handling varies greatly for different types of carriers. The problems of regulation, determining scope of operations, safety regulations, and appropriate rate structures are directly related to these classifications. It is probable that the non-scheduled air cargo carriers will develop several

types of route layouts. These may follow to some degree the patterns of operation developed by the trucking industry modified by the greater speed and flexibility of the plane.

### Five Types

1. Air cargo carriers organized to serve a restricted but compact geographical area so intensifying the development that they will render service to most of the communities in this area. These operators will really be short-haul air carriers.

2. The "string" type in which an operator connects a few distant cities and a limited number of intermediate points; the length of such routes will nearly always exceed 1000 miles, but the belt of territory served is narrow and the development is extensive rather than intensive. Such carriers will specialize in long haul business.

3. Combinations of (1) and (2) whereby two or more terminal areas will be served intensively connected by a through route of the "string" type.

4. Radial route patterns starting from some secondary city, small town, or large city and branching out in all directions. The radii may be from 100 to 500 miles from the central terminal.

5. Air cargo carriers virtually duplicating the basic trunk airline pattern.

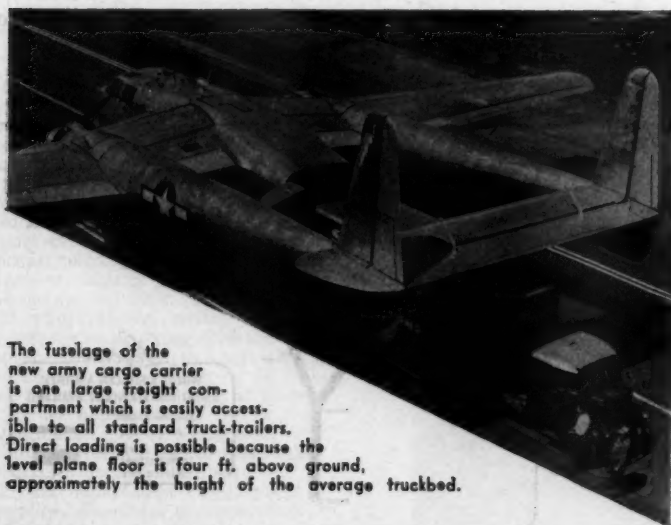
### Four Basic Factors

What are the prospects for the non-scheduled and contract air cargo carrier? As soon as equipment becomes available are there going to be chances to make money in this branch of transportation? In answering these two questions there are four factors to be taken into consideration. These are:

1. Cost. It is admitted by all concerned that air transport operating costs are much higher than those prevalent in the highway and railway fields; and that, despite expected reductions in costs, and their translation into much lower rates, they are likely to remain well above the levels of railway express rates for some time to come.

Investigations into prospective cargo traffic which the airlines might hope to obtain in the postwar years have brought responses from the sands of shippers and receivers. They appear to warrant the conclusion that unless and until airline rates for carriage of cargo fall under 15c. per ton-mile, the type of traffic that is most likely to move by air will consist largely of small individual consignments of valuable freight and merchandise moving distances of 400 miles and more. Such cargo is valuable enough to bear the higher airline rates; and in numerous instances the high speed service is worth what to shipper or receiver because of some marketing advantage. Doubtless many emergency airline movements of other types of cargo will take place but the best chance for thorough and systematic development of air cargo to yield continuous flows, seems to be

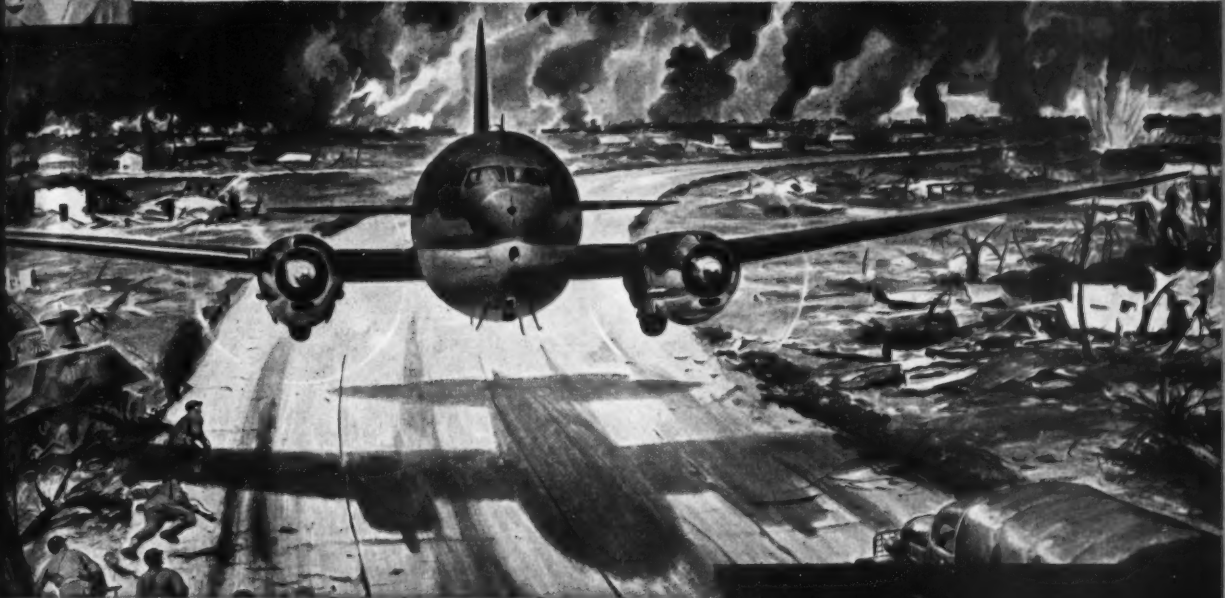
(Continued on page 89)



The fuselage of the new army cargo carrier is one large freight compartment which is easily accessible to all standard truck-trailers. Direct loading is possible because the level plane floor is four ft. above ground, approximately the height of the average truckbed.

# "How Bataan's Angels of Mercy finally *SPROUTED WINGS*"

Based on a true story taken from the war record of the Curtiss Commando



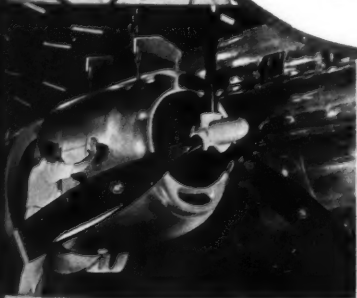
"Three Dreadful Years in Santo Tomás had just about robbed us of all hope. Then, at long last, the Americans burst into Manila. And we were free! Soon, 80 of us, including 71 nurses, were driven outside Manila. There, to our amazement, a huge Commando was waiting on a boulevard. Somehow all 80 piled into that 40-passenger transport, each with 25 pounds of baggage. Then down the boulevard, and around a dog-leg turn, we roared. How that transport, with its double load, ever got off the ground, I'll never know. But suddenly we were air-borne. We had sprouted wings . . . wings of freedom. We were going home!"



THAT'S WHY I'M FOR  
THE AIRLINES THAT

*Fly Commando!*

**Time Does Fly** and you'll want your rush shipments to fly, too. There's room on regular Commando passenger-cargo runs for at least 2 tons of perishables. More fruit and vegetables, cut flowers and plants, even eggs will be delivered air-fresh, with twin-engine economy, when you *Ship Commando!* And that means more profit for you.



**No Time's A-wastin'.** Greater accessibility for servicing means shipments spend less time at terminals when you *Ship Commando!* For example, the 8-panel cowl-ing may be opened quickly, without tools, for engine checks, or the entire power unit can easily be changed in 20 to 30 minutes.

**Whether You Ship Or Ride,** choose Commando. At the rear of the luxurious cabin, you'll find two beautifully appointed, separate lavatory lounges. And from the bigger sky kitchen at the opposite end of the plane, more varied and delicious meals will be served by 2 hostesses or a steward and a hostess when you *Fly Commando!*

THE CURTISS

*Commando*

Today's Great Lifeline  
Tomorrow's Great Airliner

**CURTISS**  
  
**WRIGHT**  
FIRST IN FLIGHT



## Brokers Form Air Clearance Assn.

An unprecedented move by the New York Custom Brokers Assn. aimed at expediting clearance of all imports into the United States by air, has caused the establishment of the New York Custom Brokers' Air Clearance Assn., Inc.

The organization has been hailed as "the first move in the history of the New York Customs Brokers Assn. to consolidate and concentrate efforts towards the efficient and prompt clearance and movement of air cargo for its clients" through various airports of this country.

## 678 Proposed New Airline Stops

Plans for expansion of air transport service have resulted in proposals for 678 new scheduled airline stops in the United States, embracing 794,296 miles of routes, according to a compilation by the Air Transport Assn. of America, covering the first quarter of 1945.

At the end of this period 554 applications were pending before the CAB for new domestic service, as well as 100 applications for foreign service, covering 634,625 route miles, and 37 applications for new Alaskan operations. This total of 691 compares with 534 on May 1 a year ago.

## Pyramid-Shape Crates Carry Asparagus by Air

Asparagus, for the first time in history, is being delivered by air, the Wirebound Box Mfrs. Assn. has announced.

Specially designed pyramid-shape wirebound crates that save the shipper two lbs. in tare weight per container are carrying the airborne asparagus across the country, from California home soil to the dinner tables of the East and Middle West.



Reg. U.S. Pat. Off.

## Capital Needs of Airlines Estimated At \$500,000,000 in Next Five Years

Expansion of commercial flying to an estimated eight billion passenger miles annually in the next five years and new financing of \$500,000,000 to meet this expected growth are pre-

Life Insurance Co. of New York, the Chase National Bank and the New York Trust Co., under the supervision of Gordon D. Brown, independent consultant on aviation problems.

The present report, planned to make available to the aviation industry and to financial institutions, data concerning future financing needs of airlines and methods of meeting their future capital requirements in a way that will be efficient and mutually beneficial to lender and borrower contains detailed estimates of the expected growth and probable capital needs of the airlines, and describes various financing arrangements that are being developed to meet their needs.

Methods of analyzing airline operations from the lender's standpoint are presented, and various feasible ways of financing airlines through the use of equipment trusts, conditional sales and chattel mortgages are discussed. Many of the special problems involved are analyzed, and detailed forms have been worked out for certain of the financing methods.

In outlining the dimensions of the financing problems involved, the study states that by 1950, it is probable that the domestic airlines will fly annually some 8 billion passenger miles as compared with 1.6 billions in 1943, and that the gross operating revenues of the airlines in 1950 will reach \$500,000,000 as compared with \$152,000,000 last year.

## TWA Issues Air Cargo Tariff

An air freight tariff was recently filed with the Civil Aeronautics board by Transcontinental and Western Air, Inc. It provides for charges on an airport-to-airport basis. Charges for pick-up and delivery will be made available at the option of the shipper.

Because of present limitations on cargo planes, TWA's air freight business will be conducted on a limited basis. Freight will be accepted after passengers, mail, and regular air express have been taken aboard. Priorities will not be granted for freight movements.

The tariff provides four classifications of commodities. Charges vary between 30c. and 55c. per ton mi. Service is now available between New York, Chicago, Kansas City, Phoenix, and Los Angeles. The establishment of air freight terminals in these cities is contemplated.

dicted in an extensive survey entitled "Airline Finance," conducted jointly by Bankers Trust Co., The Mutual

## Recent Technological Progress Opens Up "Countless New Markets" Aeronautically

New markets in countless industries will be unlocked, many entirely new industries created, and old ones expanded and revolutionized as a result of the technological progress which has been brought about during World War II, Robert L. Smith, president, Los Angeles Airport Commission, said in a recent address before a Los Angeles meeting of the Society of Automotive Engineers.

Mr. Smith, head of Mission Nurseries, Inc., Los Angeles, Cal., which grows flowers expressly for shipment by air to the East, spoke on "Perishable Air Cargo Today."

He told of how a whole new industry, the growing of flowers for distribution by air, has been created by technological means in southern Cal.

The tremendous progress made in air transportation during the war period will open up many new markets and redistribute old ones, Mr. Smith declared, and predicted that southern California, by virtue of stepped up postwar air transportation facilities, will become the "flower basket" of America.

Mr. Smith prefaced his discussion of perishable air cargo by emphasizing the need for proper merchandising and efficient presentation of a commodity or an idea to the public, whether it be flowers, airports, automobiles or ice boxes. He deplored the practice of technological experts for being reluctant to publicize their activities.

## SAE Speakers Predict Distribution Changes

That air cargo will effect revolutionary changes in American methods of distribution was the prediction of several speakers at recent meetings of the Society of Automotive Engineers in New York. Rates of 15¢ per ton mile were envisioned on cargoes ranging from 250 to 10,000 lb.

The retail outlet of the future, it was declared, need stock only samples, and take orders for overnight delivery by air from the factory, which would be located at the source of raw materials. Cargo planes of design which will permit the use of modern materials handling equipment in loading and unloading were suggested.

# Postwar Aspects of the Helicopter

**"Any one or all, or many combinations of jobs that are still different may be done by the helicopter. It is a field in which the imagination can go all-out, but it is with just this kind of imagining that we in the CAA must concern ourselves as we make plans to fit the helicopter into the aerial scheme of things."**

By CHARLES I. STANTON

Deputy Administrator  
Civil Aeronautics Administration

• • •

Part of a recent talk delivered by Mr. Stanton, before the fifth semi-technical meeting, American Helicopter Society, Inc., at Bridgeport, Conn.

port Service, often with equipment pulled out of stations on our home airways. As the fronts move forward, the CAA follows close behind to give our airmen what they need in facilities. We recently set up Air Traffic Control Centers along the "Tokio Run" at Johnston, Kwajalein and Guam Islands.

Under the Civil Pilot Training Program, later called War Training Service, we gave initial training to nearly 200,000 airmen, included among them a large percentage of the instructors used in the Army and Navy training establishments. We are now assisting school authorities country-wide in installing aviation training courses in public schools. We enforce the safety regulations of the air which are drawn

up by the Civil Aeronautics Board. In this work of safety regulation, we have a General Inspection Division, a Medical Division, an Engineering Division, and an Air Carrier Division. On top of all that we even retain the aviation gasoline used in non-air-carrier flying.

## Helicopter Regulation

To help promote the helicopter to the full extent of its capabilities means not only that we must pass upon each new model as airworthy, but we must certificate each pilot, and help out, and then enforce, an entirely new group of air traffic rules and regulations to apply to helicopters. Undoubtedly, qualifying requirements for all types of certificates will be different.

It is not difficult to imagine the helicopter performing many of the in-

(Continued on page 92)

This is the YO-60 autogiro. Photo was snapped a moment after takeoff illustrating the sharp angle at which the giro takes to the air.



THE CAA has one helicopter pilot, only one, so let me hasten to disavow being in any way an expert on these amazing craft. Consequently, all but one of us are just old-fashioned fixed wing men, looking forward without benefit of acquired experience to the day when we shall have to deal with quantities of helicopters. It may surprise you to know that from the beginning we have had the function of certificating and regulating the operation of lighter-than-air craft. But that has been almost entirely academic and certainly painless. We anticipate no similarity in connection with helicopters. So, I am happy to report that the CAA is not ignoring the helicopter and that the wheels are grinding so that we hope to be ready when the helicopter is ready for the public.

The CAA's main reason for existence is to encourage and foster civil aviation. This is more complex than it may seem off hand. We survey, plan, and advise on construction of airports; we have built and rebuilt, and now maintain and operate a Federal Airway System of 37,000 miles, with additional establishment on 15,000 miles more, over which commercial air transport is now operating, yet to come; on these airways we maintain landing fields and beacon lights, control air traffic, maintain and man radio aids to navigation and communication and weather stations; continually revise, and distribute radio navigation charts; send out notices to airmen regarding local conditions; aid the individual pilot in distress by any means at our disposal.

## Worldwide Service

In effect, our airways now reach around the world, for CAA on request of the Army and Navy has directed installation of airways facilities on all the routes flown by the Air Transport Command and the Naval Air Trans-

# NEVER ANY SLACK IN

Utility Loader *grip-locked* loads have tremendous advantages . . . in shipping to multiple consignees. The general purpose Utility Loader *grips* the load that's left after each unloading



At left, general purpose Utility Loader equipment grip-locking box car load of many pieces of various shapes and sizes. Below, same equipment grip-locking only one piece of cargo just as securely.

**100 Boxes**  
or  
**1 Box**





# GRIP-LOCKED LOADS!

... and *locks* it against shifting, vibration and shock—the principal causes of damage to freight in transit. Grip-locked loads are vital to every home, store, business, warehouse and factory. They'll protect all those long-needed civilian goods we'll eventually get . . . and bring them to us unscratched, unmarred, uncracked — *totally* undamaged.

Write for a copy of the Evans Manual today. It illustrates the manifold advantages of general purpose Utility Loader grip-locked loads to shipper, carrier and consignee alike.



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**GRIPS** *and* **LOCKS**  
**THE LOAD** **THE GRIP**



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THE RAILROADS

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D and W, July, 1945—53

# Distribution Worldwide

Reg. U. S. Pat. Off.

• Postwar international trade for the United States must be a two-way road or it will become a dead-end street.

J. Stanton Robbins, Managing Director  
International House, New Orleans

## Four-Point Plan Suggested by Aldrich For Building International Trade

In a talk before the Canadian Manufacturers Assn. recently, Winthrop W. Aldrich, president of the International Chamber of Commerce and head of the Chase National Bank, outlined a four-point program, which he declared was essential for the rebuilding of world trade, adding that no time should be lost in calling a world trade conference for discussing and making recommendations on problems affecting international commerce.

His program includes the following steps:

- 1—That trade barriers be reduced.
- 2—That cartels and commodity agreements be opposed.
- 3—That constructive foreign lending policies be developed on the part of creditor nations.
- 4—That foreign exchange values of principal currencies of the world be stabilized.

"The United States," Mr. Aldrich stated, "should take the initiative in calling a world trade conference in order to implement Article IV of the Atlantic Charter and Article VII of the Master Lend-Lease agreement, which are designed to bring about a reduction in trade barriers. Success of the proposed conference will depend largely upon the type of leadership exerted by the United States."

"It must be prepared to reduce tariff rates not only by the 50 per cent provided for in the pending bill extending the Reciprocal Trade Agreements Act, but by whatever additional amount is required to achieve the desired goal."

In discussing cartels he said that in the postwar period strong pressure will exist for the cartelization of industry and for international commodity agreements. "Both must be resisted," he continued, "if we are to have an expanding world trade to which all nations will have access on an equal basis."

### Strange Cargo

Airplanes, like other forms of transportation, at times carry strange cargoes. E. T. Howe, superintendent of cargo service, Trans-Canada Air Lines, said in Regina, Saskatchewan, that it is quite often that T.C.A. planes carry frozen leeches. He said for transportation purposes the leeches were frozen since they died when becoming too warm. Seeing-eye dogs were the only other type of animal that T.C.A. would carry, he said.

### New Products Exposition Scheduled for 1946

America's first annual "Products of Tomorrow" exposition has been approved by the Office of Defense Transportation, which is expected to assign it an opening date during the first three months of 1946.

Because of its central location and the fact that buildings suitable for the exposition are available, Chicago is a favored site.

Exhibitors will have few restrictions on the design of their displays. They will be encouraged to go the limit in originality and effectiveness. Many of the displays are expected to set the public style for years to come. Exhibitors will be encouraged to appeal to the five senses: sight, sound, touch, taste, and odor, in driving home the merits of their products.

## Commerce and Industry Group Outlines Program for Stable Domestic Economy

The Commerce and Industry Assn. of New York has submitted to the Foreign Trade Subcommittee to Study Problems of American Small Business a nine-point program making specific recommendations on small business, export set-asides, foreign buying commissions, credit insurance, international currencies, the Export-Import Bank, customs clearances, import-export controls, and Office of Price Administration regulations.

The program, transmitted to Senator Claude Pepper, committee chairman, by Thomas Jefferson Miley, association secretary, is outlined as follows:

1. While encouraging small business concerns to spread their wings in foreign trade, Government should discourage efforts to set up their own export departments, and urge them to sell through already established export houses.

2. United States industry will have a marked time advantage over competitor countries in producing goods for peace-time economy. It is sincerely hoped that our Government and industry will be sufficiently far-sighted to realize that situation by making available a reasonable part of production for foreign markets.

3. The operations of foreign government purchasing missions in the United States are contrary to the

### Record-Breaking Export, Import Reports Made

Bureau of the Census, Department of Commerce, has announced that with the cessation of hostilities in Europe security regulations have been relaxed to permit the release for the first time of information on the ports that areas through which record-breaking exports and imports are being made.

The increase in United States exports from \$3.1 billion in 1938, the first complete pre-war year, to \$14.2 billion (including Lend-Lease, but excluding shipments to the United States armed forces) in 1944, was absorbed principally by Atlantic Coast ports which handled \$1.5 billion or 49 per cent of total United States exports in 1938 and \$8.9 billion or 63 per cent in 1944. Gulf ports meanwhile declined in importance in the export trade from 20 per cent in 1938 to 9 per cent in 1944, while Pacific ports increased from 13 per cent in 1938 to 16 per cent in 1943 and declined to 11 per cent in 1944.

American principles of free enterprise and should be opposed by all branches of our Government because they disrupt normal distribution channels.

4. Government foreign credit insurance, which has been proposed on various occasions, is not endorsed by the majority of experienced foreign traders.

5. Strong recommendations that the Government explore possibilities of Government export insurance to be made available through commercial banks.

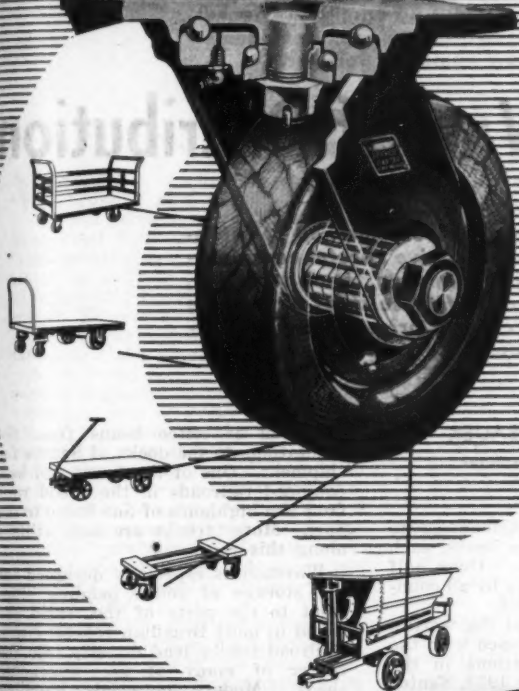
6. Expansion of Export-Import Bank facilities to provide more flexible and more readily available financing assistance to smaller manufacturers, particularly of capital goods.

7. Existing procedures of clearing goods through the custom house are so complicated and so expensive they act as a deterrent to import business, with clarification and simplification of the act at least as important as reductions in the rates of duty.

8. End of operations of the United States Commodity Corporation and other governmental procurement agencies is vital for return as soon as possible of foreign trade to normal trade channels.

9. OPA regulations needlessly handicap imports and modifications are suggested to strengthen distribution.

# new life



## WITH LIFE-GIVING ForgeWelds

A truck with a new set of ForgeWelds is like a colt in spring—full of new life and rarin' to go. Honestly, these finer casters work wonders under hauling units—let your men speed heavy loads with the swiftness and smoothness that ball bearing swivels and roller bearing wheels provide. And tough!—they're built to last—to make replacements few and far between. All sizes—all types to fit all needs.

**SERVICE CASTER & TRUCK DIVISION of Domestic Industries, Inc.**

517 N. Brownwood Avenue, Albion, Michigan  
 Eastern Factory: 432 Somerville Ave., Somerville (Boston), Mass.  
 Toronto, Canada: United Steel Corporation, Ltd., SC&T Co. Division

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 LIFTERS • CRANES  
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The \$45.15 check  
 that earned  
 \$1,059

When time means money, Air Express *earns* its weight in gold as thousands of companies, large and small, have learned.

For instance, a Midwest manufacturer must retool almost in a matter of hours or lose a contract for a new radio part. So he wires Connecticut for new tools via Air Express and has them in the morning. He pays \$45.15 Air Express charges, but makes over \$1,000 on the contract he saves.

## Specify Air Express—High Speed for Low Cost

To prevent tie-ups or shutdowns, save man-hours, gain production time, serve customers—these are some of the reasons why you will find the speed of Air Express economically important.

Shipments travel at a speed of three miles a minute between principal U. S. towns and cities, with cost including special pick-up and delivery. Same-day delivery between many airport towns and cities. Rapid air-rail service to 23,000 off-airline points in United States. Direct service to scores of foreign countries.

AIR MILES	2 lbs.	5 lbs.	10 lbs.	25 lbs.
350	\$1.04	\$1.35	\$1.57	\$2.63
500	\$1.11	\$1.52	\$2.19	\$4.30
1000	\$1.26	\$2.19	\$3.74	\$9.75
2500	\$1.63	\$4.30	\$8.40	\$21.00



Write Today for interesting "Map of Postwar Town" picturing advantages of Air Express to community, business and industry. Air Express Division, Railway Express Agency, 230 Park Avenue, New York 17. Or ask for it at any Airline or Express office.

Phone AIR EXPRESS DIVISION, RAILWAY EXPRESS AGENCY  
 Representing the AIRLINES of the United States

D and W, July, 1945—55





1. Coffee bags move along an overhead conveyor belt from a warehouse in Santos, Brazil.



2. When the coffee reaches the designated pier, it is diverted from the conveyor belt.

# The South American Way Of Distribution

**Brazil's coffee industry has demonstrated that one method of establishing successful worldwide distribution is to give careful consideration to such vital factors as materials handling, transportation, marketing and research. The ultimate aim of these steps is to place the product before the public at a purchasing price which will permit quantity consumption and a reasonable rate of profit.**

**T**HAT economical distribution has been achieved on a worldwide basis by other lands as well as by our own nation is demonstrated by the coffee industry of Brazil.

Just as we overcome the problems inherent in the distribution of office machines, radios, refrigerators and automobiles, the businessmen of Brazil have answered the question of how to transport, handle and market coffee in a most efficient manner.

Production and distribution of Brazilian coffee is "big business" in every sense of the phrase. It involves the cultivation and servicing of over two and one half billion trees, and average annual handling and transportation

By **GEORGE F. BAUER**  
*International Consultant*

for export of a yield amounting to 15,000,000 bags of coffee beans, each of which weighs 132 lb. Over half the coffee imported yearly by all countries is produced in Brazil.

Santos, Brazil is one of the world's great seaports. It developed with the growth of coffee plantations in the state of Sao Paulo. By 1939, Santos alone had provided facilities for the export of 11,000,000 bags of coffee annually.

A model of efficiency is the trans-

portation of coffee beans from the plantations to the docks of Santos for shipment. One of the finest and best equipped railroads in the world runs from the highlands of Sao Paulo to the port. Motor trucks are also utilized along this route.

Warehouses especially designed for the storage of coffee pending shipment to the ports of the world are found in most Brazilian coastal cities. Railroad tracks lead directly into the center of many of the warehouse sheds. Modern materials handling equipment permits the stacking of coffee close to the ceilings. Full utilization is made of ground space, as well as of space above ground.

Many warehouses are linked to piers by means of endless conveyor belts. Coffee is placed on the conveyor belt in the warehouse, and moves without interruption to the loading apron at the pier, passing over or under busy streets and avenues in many cases. From the loading apron, the coffee bags are sent down a chute into the hold of the ship.

Manholes are utilized to permit the transfer of coffee from motor trucks to underground conveyor belts. Coffee passes from a truck to the hold of a ship via the underground conveyor belt in a matter of a few minutes.

## Handling Facilities

Few ports in the world have developed materials handling facilities to a greater extent than Santos. Many ports in the United States could benefit by the adoption of some of the installations used in the Brazilian city.

Although the United States is the

(Continued on page 84)

3. In the same continuous operation, the coffee is sent down a chute into the hold of the ship.



# Materials Handling Probabilities During Reconversion

**Materials handling equipment is the keystone of an early resumption of civilian production. In the automotive industry, prewar equipment is being restored and altered in the light of wartime experience. There may be some delay before the adoption of new types of equipment because of the economic necessity of avoiding a long time lag between wartime and peacetime production.**

By HAVILAND F. REVES  
*Special Correspondent*

**W**ARTIME experience has brought new developments in the handling of materials that have been little publicized, but not much actually new in equipment or installation is likely to be widely adopted in industry during the reconversion period. There are sound economic reasons for this apparent conservatism that must take precedence today.

A quick and relatively painless conversion to peacetime production is the necessary goal of every large industry. This cannot be accomplished if time is taken to develop, perfect, and install new production equipment and methods now. If such time were taken, there would be a long waiting period that would mean delayed profits and probable protracted unemployment, with all the problems that these two conditions will pose to industry and to labor alike.

Typical is the situation in the automotive field, which is most significant because of the size of the industry itself. Production engineers have voiced the opinion that both cars and production methods should be redesigned from the ground up when reconversion started. However, with the advent of early postwar reconversion, the main objective has been to get cars back into production and on the market.

## Replacements Essential

The depletion of the national pool of cars, with the great demand for essential vehicle replacements, made it imperative to resume car manufacturing in limited quantity recently. Production goals have been set at 2,000,000 cars within a year, with about 200,000 scheduled by the end of 1945. It was conceivable that concentration of production facilities in one plant to produce an essential stripped "victory model" car would answer the most urgent needs, but our competitive American economy does not permit that type of operation.

Instead, all of our automobile companies will be back in the market with new cars in the shortest possible time, each company developing its own product with immediate production as the goal.

Handling equipment is the keystone

of an early resumption of production. The very idea of an industrial civilization is epitomized in the assembly lines of Detroit. This equipment has been stored, for the most part, during the war. It will be restored to its original operating efficiency as speedily as possible. It will be ready to serve in the quick, resumption of production of cars that will be much like the last prewar models.

Later, the companies are expected to turn to newer installations, as plans for later postwar models develop and new production methods for newly-designed products are devised.

However, even in the planning of new plants, the immediate trend is to the use of familiar prewar types of equipment, rather than to new designs. General Motors is planning four new plants in different cities, the first

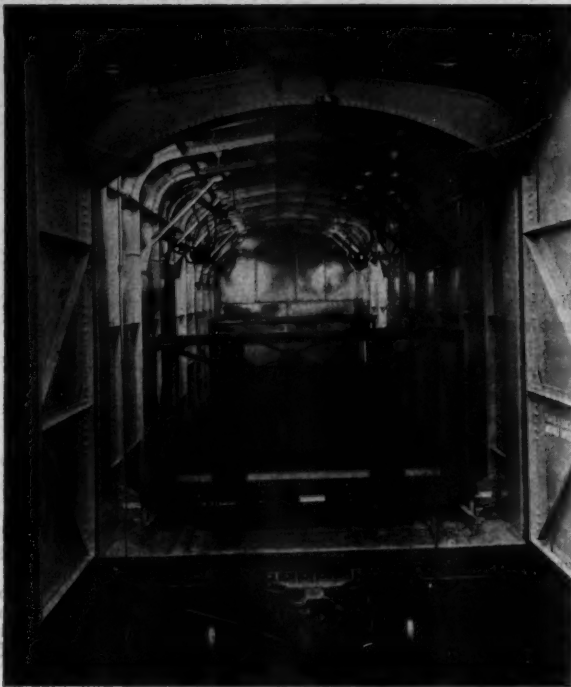
at Wilmington. Reports are that the others will be located in Boston, St. Louis, and Philadelphia. The use of overhead conveyors was briefly considered for these new plants, in contrast to the floor type conveyor which has been standard GM practice for many years. The latter type was ultimately selected for the new plants. In contrast, the overhead type has been used for years in Ford operations.

The trend of later developments is indicated by plans for Chevrolet body and assembly plants, one to be erected at Flint and one at Cincinnati, which are expected to have the overhead system. How different from past practice the first postwar operations may be is typified by the expectation that the first Chevrolets to be sold in Detroit and Flint will be assembled in other states and shipped in, because the local plants will not be converted from war work.

Production of handling equipment is entirely for war work at present,



Metal tubes are mechanically loaded onto racks, which are picked up, transported, and delivered by fork trucks.



Specially constructed box car with shipping dolly and other dunnage is used for transportation of B-29 sub-assemblies.

and little new equipment will be available in the near future for large scale production such as the automotive industry requires. Conveyor equipment for this field is made up mostly of chain items, and chain production is expected to be a serious bottleneck. The armed forces are still the biggest users of chain, and they take all that producers can deliver to them. No sizable cutbacks are in sight. An AA priority order placed today would result in delivery of chain in about 30 weeks.

The conveyor companies expect to have plenty of work in the next six months, but it will be mostly a matter of replacing older equipment removed in 1940 or 1941. The manpower situation in the conveyor field is not too difficult, but the real shortage is in materials.

Little prewar or wartime conveyor equipment in auto plants is likely to remain unchanged. Some companies have made large scale adaptations of their equipment to wartime production. In other cases, additional equipment installed is of the same type as that used for car production, but in few cases is it in locations suitable for automotive manufacture.

One obvious lesson has been learned from this wartime experience. Full scale conveyor operation is best adapted to large scale production, rather than to production of multiple products. However, the use of specialized handling equipment qualifies this statement in many respects. Another lesson is that the conveyor system is fairly adaptable to system changes through relocation.

Wartime experience of the auto companies may not be readily adaptable to extensive postwar use because many operations during the past sev-

This adjustable rack is used for handling airplane sub-assemblies in interplant transportation by rail or motor vehicle.



eral years have been too specialized. Shells, for instance, could not be handled on regular assembly line conveyors, but required special types of equipment.

#### Automotive Contributions

The general view among production men appears to be that the auto industry has contributed more to other industries in the way of handling methods than it has gained through its own wartime experience. Airplanes, for instance, were virtually put on a line basis in an installation by Service Conveyor Co. at the Consolidated Vultee plant at Wayne, Mich. The virtues of line production are an old story to car manufacturers, and the practice was widely adopted in other industries on a more limited

scale. Specialized needs, smaller production of like units, greater number of products, and frequent changes of design made war production less adaptable to general line operation.

Much wartime materials handling experience is still closely restricted from publication, even though the products themselves may be well publicized by now. In addition, exact plans are carefully guarded today by competitive plants in the present transitional stage of industry. It is therefore impossible to be specific in the discussion of many new handling developments.

Several economic factors require consideration at this time, since they may unfavorably affect the use of materials handling equipment. Most serious is the feeling among some business executives that it is not worth while to put in additional equipment to save labor in handling, because of the anticipated demand of labor organizations for compensatory wage increases.

One case was cited in discussion of one of the smaller auto companies which assembled a motor for \$2.40, but the present union demand is \$5.80 in pay for the job. Without going into consideration of offsetting factors, the conclusion some executives reach is that the manufacturer might as well

pay for the cost of hand assembly in some cases, as to pay both for the installation of conveyor equipment and higher assembly cost.

#### Conveyor Prices Up

This is a product of the natural aim of workers to receive the same pay for the same operation, even though the method may be altered by mechanical aid.

Another factor is an increase in conveyor prices, now nearly double the 1939 figure. Erection costs have increased heavily. One conveyor company reports that where formerly a mechanic received \$1.25 and his helper 90c. per hr., the job must now be done by mechanics only, at \$1.80. In the eastern territory, they report, it was

(Continued on page 72)



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# Gas Station Shopping Centers Seen As Postwar Development

**G**ASOLINE service stations after the war may become shopping centers handling a host of products—even to refrigerators and radios—besides supplies and services for automobiles, says "Ethyl News," publication of Ethyl Corp.

This evolution of the gasoline outlet, from filling station to service station to "service store," is visualized as paralleling the development of the modern drugstore and cigar store, which also branched into sale of many unrelated products.

Wartime reduction in gasoline sales turned many service stations to stressing sale of automobile supplies and services, and such diverse items as toys, household appliances, sporting goods, aspirin, garden seeds, and an almost endless list of other goods, it is pointed out.

## Super Station Service

Some of the major oil companies have postwar plans for super station service, and two companies "are planning to handle such heavy items as

refrigerators, stoves, ironers, console radios, and washing machines. These will be warehoused by the companies, and delivered in company trucks to dealers for display and sale."

This development, it is declared, "is an indication that oil marketing is moving along toward maturity, in the sense of the pre-war concept. Lower costs of operation, narrower margins, and competition, which can be expected to increase rather than decrease, will make (gasoline) gallonage a less significant unit of measure for the average service station.

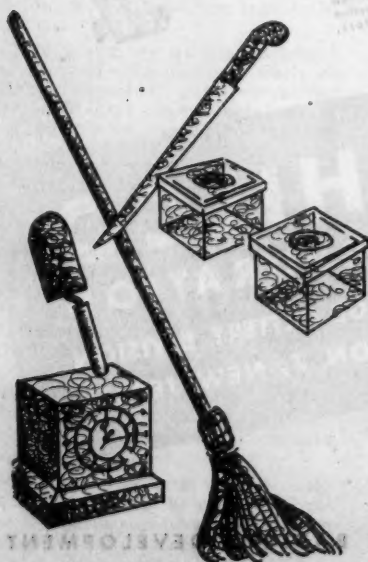
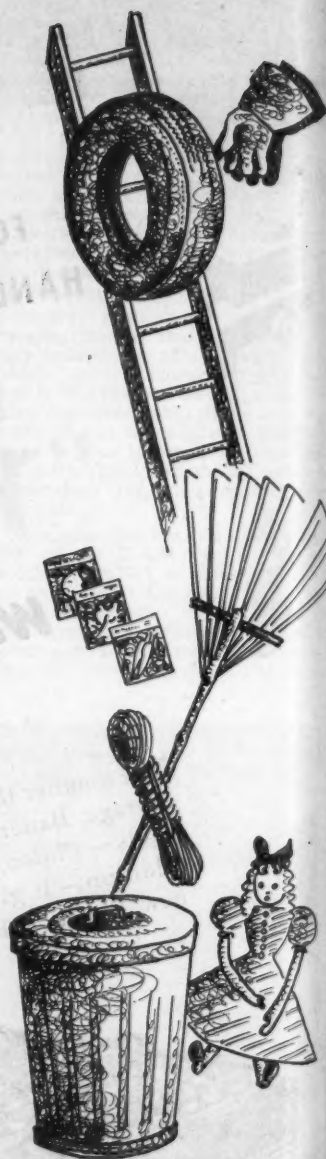
"Parallels can be found in the development of the pharmacy into the modern drug store under conditions of cut-rate competition, and the cigar store which branched out into the sale of work clothes, clocks, fountain pens, and innumerable other items.

"Do not be alarmed, though, that in the future you may not be able to distinguish between your favorite service station and the corner drug store combined with the hardware store, the electrical supply shop and the jewelry store. One definition of a service station is this: a place where you buy automotive products and have your car serviced. Another is this: an important point of liquidation for past investments by integrated companies in crude oil exploration and development, refining, transportation and research.

"If that latter definition is kept in mind, it becomes apparent that the main job must be the selling of petroleum products and the service that makes continued, efficient use of those products possible. However the 'extras,' as they were called in the days before the war, are becoming more essential in making possible the type of super station service the industry is aiming for after the war.

"Over-all, the postwar service station promises to be a more stable economic unit, less affected by serious gasoline price wars, and more attractive to a high-type independent merchant. Look for service stations to represent larger investments, to require greater operating capital.

"Look for the petroleum industry to spend millions of dollars in rehabilitating and equipping stations, and building new ones. Look also for



these: new stress on tire, battery accessory sales, training, housewifery, and precision service. Above all, look for the retail function of the petroleum industry to stand squarely on its own feet as a profitable unit."

## Balanced Selling

For years before Pearl Harbor, company marketing experts had advocated balanced selling, a certain amount of motor oil, lubrication, and tire, battery and accessory business to every 1,000 gallons of gasoline sold.

In 1939, a Department of Commerce survey of more than 175,000 service stations showed gasoline and motor oil on the average accounted for 70 per cent of gross income. Today, estimated servicing and sale of related and unrelated items accounts for 40 to 50 per cent of the gross.

# The Class Rate Decision

The recent revolutionary decision of the Interstate Commerce Commission on class rates has had a terrific impact on the freight rate situation, especially in the eastern section of the country.

It is reasonably certain, when the new rates are ultimately established, that cancellation of the present exception and columnar rates, and probably of many commodity rates, will be demanded.

Uniformity will require, if observed, the same class, columnar, and exception rates in all territories. The ultimate effect will be to place all rates on a mileage basis. The number of miles will determine the rate.

By HENRY G. ELWELL

Traffic Consultant

and HARRY S. ELKINS

Attorney at Law

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rates within each and between them are presumed to reflect the pressure of different economic conditions. For example, factories on waterways or adjacent to coal or natural gas regions, or in localities of skilled labor, have advantages over factories situated where these advantages do not exist. Long ago, the Interstate Commerce Commission and the Supreme Court laid down the principle that the Government may not equalize geographical or natural advantages by adjusting freight rates in such a manner as to offset them.

Within each of the territories the patterns of rates are different. The Commission in numerous cases has considered transportation within each territory and between them, and has required the establishment of rates which have seemed to it to reflect the advantages of each region. But the patterns it has described have not satisfied the shippers of the South and West generally. Even louder has been the contention that the low freight rates of the East and of the higher rates of the other territories, have retarded industrial development.

The South argues, for example, that it is not a relatively new and pioneer region. It would be a highly devel-

oped industrial section today, it is said, because of its waterways and its natural resources, if development had not been retarded by high rates within its borders or because of the low rates available to manufacturers in the East.

## Merely First Step

The Interstate Commerce Commission in the Class Rate Case says that the class rate structures it has prescribed in the past and somewhat recently in all of the territories East of the Rocky Mountains and between those territories, have now become unreasonable and unlawful and that the South and West have suffered unduly from the rates it approved and that the inequalities must now be reduced or eliminated.

But that case is merely the first step, for it deals only with certain kinds of rates and with rates which, broadly speaking, do not move basic or low-grade commodities, the normal movement of which is in carloads.

The rate patterns are so complex and the rates themselves so numerous that no immediate change affecting all of them could possibly be made. It may be a decade or more before there is any substantial equality as a result of that case.

## Interim Rates

In the meantime, and to give some relief to the aggrieved regions, the Commission will require the carriers to establish what it describes as "interim" rates. Class rates within Official or Eastern territory will be increased 10 per cent on Aug. 30, 1945. Class rates within Southern, Southwestern, and Western territories and between those territories and the Eastern territory will be reduced 10 per cent. The Commission is careful

WHEN a farmer or other citizen of a small country town in the South or West used to ask why the price of shoes was so high, the storekeeper generally replied by blaming "the freight rates."

Whether the question referred to a spool of thread, a gingham dress, or a new cook stove, the answer usually was the same. It has been that way for generations. The South and the West have been more freight-rate conscious than any other regions. The railroads, the bankers, and Wall Street have been blamed and the politicians have belabored them for years.

A complete and satisfying explanation of high rates or differences in rates for similar distances is not possible. By and large, it might be said of different rates on different commodities that the railroads have established low rates to move the commodities produced in the regions served. Apples and oranges from the West Coast move at rates much lower per mile than the same rates in the East. When the West or the South complain of high rates on manufactured articles from the East, those regions usually overlook the fact that low rates have been established by the railroads from those states on the commodities which they produce, such as fruits, lumber, live stock, and cotton. Conversely, the East is a manufacturing region, and the rates on the manufactured articles produced in that region have been less than the rates maintained by the railroads on the same articles for the same distances within the West and the South.

Those sections have progressed rapidly within the last decade in spite of freight rates. But such progress seems to have made them even more conscious of transportation costs and to insist with greater energy upon equality in all respects with the industrialized East. The so-called Georgia case, initiated by Gov. Ellis Arnall of Georgia, and now under consideration by the United States Supreme Court, and the Interstate Commerce Commission's recent decision in the Class Rate Case\* are fruits of the complaints of the South and West.

Shippers of the eastern territory might well emulate their brethren of the South and West in a consideration of freight rates. When the class rate adjustment now proposed by the Commission begins to pinch it is probable that the "freight rate consciousness" of the eastern shippers will have very rapid development. It appears that hard lessons are in store.

## Factors and Patterns

The factors which affect the making of freight rates are different in each of the three territories. The

\*I.C.C. No. 28306 Class Rate Investigation 1939. I.C.C. No. 28310 Consolidated Freight Classification. Decided May 15, 1945.

EDITOR'S NOTE: The authors of this article have had many years of practical experience in traffic work. Mr. Elwell is traffic manager for a number of manufacturers and other shippers. He is a practitioner before the ICC and the U. S. Maritime Commission.

Mr. Elkins has a law practice in Washington, D. C., is traffic attorney for the National Petroleum Assn., editor, NPA "Digests of Rates by Pipeline"; has been an attorney before the ICC since 1919. Previously to that, he was employed by the Commission.



to say that only those rates known as class are affected; that "no changes in existing exception rates or column rates are contemplated by this finding." Also, in effecting the changes, the rates as changed must bear the same percentage relationship to the first class or 100 per cent rate as do existing class rates. These changes, the Commission says, will afford partial relief, while progress is made toward "ultimate" relief.

The so-called classification is an arrangement of all commodities in groups for rate-application purposes. The number of articles moving by railroad is in the hundred thousands. Undoubtedly, much can be said for uniformity and simplicity in the classification and descriptions of commodities or of groups of them. The ultimate application of the classification of Official territory is approved as reasonable.

It is required also that the carriers establish some 20 classes\* less than 100 per cent, and several classes over 100 per cent. In the present tariffs there are thousands of rates not identified as class rates. Many are identified as exceptions to class rates, columnar (percentages of 100 per cent rates) and commodity rates. It is probable that the Commission will move toward an elimination of many of these rates, particularly the exception and columnar rates, for to allow them to remain in the tariffs after the new 100 per cent rates and the rates reflecting the various other per centum rates have been established, would add to existing rates thousands of new rates. Confusion would be confounded and complexities increased.

### Effects Likely

It is reasonably certain, when the new rates are ultimately established, that cancellation of the present exception and columnar rates, and probably of many commodity rates, will be demanded. Uniformity will require, if observed, the same class, columnar, and exception rates in all territories.

The ultimate effect will be to place all rates on a mileage basis. If a certain article is rated fourth-class, the rating of that class will apply throughout the three territories. The freight charges on that article moving for any distance in any territory will be determined by the fourth-class rate for that distance. The number of miles will determine the rate. If length of haul is to be the principal guide, the availability of cheap power, and water transportation and the benefits of skilled labor, are made subservient. In the past all of these factors have had influence, and the railroads have had some discretion in according the weight given to each factor, subject to the prohibition of the law that no preference or advantage given may be undue.

\* Note: The classes prescribed are: 400, 300, 250, 200, 175, 150, 125, 100, 92½, 85, 77½, 70, 65, 60, 55, 50, 45, 40, 37½, 35, 32½, 30, 27½, 25, 22½, 20, 17½, 16, 14½, 12.

## Excerpts From Appendix 10

Scale of First Class Rates (Class 100) Prescribed for Application in All Territory Covered by No. 28300. Comparison Added—Official and Southern Territory Present Class Rates for Same Distances—From Appendix 8.

Miles	New Rates (ICC No. 28300)	Present Official	Southern
5	40	33	37
50	80	47	62
100	70	62	84
200	80	80	112
300	110	86	134
400	125	109	156
500	140	122	173
1000	213	182	249

### Complaints Expected

Can industry be fitted to a straight jacket? May all other factors than distance be ignored? Are rail transportation costs so small a factor in competition that the differences resulting from the application of the new scales over the old may be ignored? Within the next several years the railroads and the Commission may be flooded with a plethora of complaints from shippers and manufacturers who will say that the answers to these questions are emphatically, "No."

They will contend that their existence is threatened. They will argue that factories with natural advantages should not be placed at a disadvantage merely because they are farther away. But this country has become a highly developed industrial nation because our legislators through the years have endeavored to preserve freedom of opportunity and have aimed to permit each individual, each firm, or each region, to develop fully its own resources with a minimum of artificial restraints.

### Uniformity of Rates

It may be that transportation costs measured by distance will not unduly restrict development or growth in any territory. Undoubtedly there are many reasons why uniformity should be established; convenience and simplicity are two. The problem of the Commission and the railroads is to build a rate structure which will permit uniform development of every section of each of the three areas without restricting or retarding the development of any particular area or industry. An experiment has begun.

The pressures for and against the new rate structures will be tremendous. The task imposed upon the Commission will be almost unbearable and, unless its staff is increased and the time of consideration of cases is greatly reduced, it will be many years before the rate structure will be anywhere near the desired goal of uniformity.

The foregoing provides a review of the past, in order that we may understand causes in relation to our subject. It likewise touches on the broader aspects, as well as pointing

to future possibilities which may arise from the Commission's decision in the Class Rate Case. Let us now turn to a closer scrutiny of the 294-page mimeographed document, in which the Commission makes a revolutionary report, with the realization that we cannot include all of the details in a single article.

### Three-Part Report

The report is divided into three parts. Part I discusses the classification ratings and their relationship. The Commission finds that differences in transportation conditions within the various territories should be reflected in the rates and not in the ratings, and concludes that the ratings or classifications should be uniform within the four territories. It finds for the present that the classification pattern described for application in connection with the class rates in Eastern (Official) territory conforms better with the requirements of the statute than the classifications of the other territories, and that the general basis of the official classification (including the percentage relation between the classes) would be fair and reasonable and should be established by the carriers.

Part 2 contains a long discussion of the growth and development of the class rate structures within the four territories involved and the influence which had affected them. Considerable attention is given to freight revenue and costs. The Commission states that "there is little significant difference in the cost of furnishing transportation in the South as compared with the East; that in 1939 and the period 1930-39 the costs in the South were equal to or a little lower than in the East. If the period 1937-41 is used, the cost in the South is substantially lower than in the East." In this part (2) the Commission finds that the intraterritorial and interterritorial rates in the various territories for the future will be unjust and unreasonable. It describes for the future the scale of first class rates to apply in all of the territories. In applying the new class rates, the Commission authorizes the carriers to observe key points and groups specified in the former class rate investigations.

In Part 3 the Commission considers the interim rates, to which we already have referred. The Commission recognizes that it will be some time before the railroads can formulate a present classifications and rates which will conform to its requirements, and that there are many complexities inherent in a procedure of such character and magnitude. The shipping public and rate-making authorities of the States should be afforded an opportunity for participation in the undertaking. There is at present a shortage of men. Nevertheless, the Commission finds that it is possible to make certain adjustments which will have the effect of bringing to a minimum the preferences and prejudices which it has found to be unjust. The interim findings are made

(Continued on page 78)

# The Professionalization Of Traffic Management

## Part 2—Regulatory Legislation

**Traffic management, as the history of transportation legislation shows, has expanded gradually from the supervision of industrial shipping, the bargaining with carriers for transportation services and charges, and the collection of claims against carriers, into the broader and more significant task of expert distribution.**

By JOHN H. FREDERICK

*Professor of Transportation and Industry*

and WILLIAM J. BREWER

*Research Assistant in Transportation  
School of Business Administration  
The University of Texas*

o o o

(a) Created an Interstate Commerce Commission of five members.

(b) Interstate rates required to be just and reasonable, non-discriminatory, non-preferential, and normally, not greater for a long than for a short haul.

(c) Commission given power to pass on lawfulness of rates.

(d) Rates required to be published and observed.

(e) Court procedure to enforce law provided.

(f) Pooling of traffic, service, or earnings prohibited.

(g) Commission authorized to investigate carrier operating methods, to require annual reports, and to prescribe a system of uniform accounts.

During the 19 years that followed, until the Dolliver-Hepburn Amendment, in 1906, the Interstate Commerce Commission experimented with the administration of the Act to Regulate Commerce. The Act itself also underwent several amendments, as follows:

(a) 1889—Required ICC to report directly to Congress. Provided that the circuit courts expedite ICC cases. Required courts to enforce reparations awarded by ICC. Provided augmenting penalties.

(b) 1891—Permitted circuit courts' aid in enforcing ICC subpoenas.

(c) 1893—Immunity to persons required to testify.

(d) 1903—Hearings and determinations under act required to be expedited. Non-observance of rates made a violation.

(e) 1903—Courts empowered to enforce violations of act. Courts provided to expedite commerce cases.

### Affect on Traffic Managers

What effect did this regulation period have upon the status of the traffic manager? Since the purpose of the act of 1887 was, in part, to prohibit undue preference and unjust discrimination, it was first assumed that the outstanding usefulness of the traffic manager, as he then existed, had passed. Accordingly, business executives presumed that the duties of checking freight bills, the physical duties of packing and unpacking could be done by an inferior clerk at a decreased salary. The traffic manager of this era was a sort of glorified shipping clerk with the addition of the title. His executive responsibility was generally limited to the overseeing of a few clerks and he was isolated in what was considered a very minor department.

The traffic manager realized his  
(Continued on page 80)

TRAFFIC management, as a profession, prior to 1887 was virtually unknown, and certainly did not exist in the sense that we know it today. Disputes which arose between shippers and carriers were adjusted "across the table," or were settled in the courts. This first period comprised the "happy days" of rebates, discrimination, rate cutting, rate wars, and preferential and prejudicial services. During this time, the traffic manager was usually recruited from the ranks of the railroads themselves. He was supposed to be sufficiently familiar with the workings of the internal organization of the railroad, so as to secure the most advantageous terms and the largest rebates.

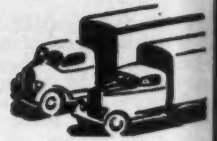
The industries, through their traffic managers, bargained with the railroads to secure the most advantageous terms and best services. In this way an industry's range of market competition was widened, and those least favored were driven out by the competitive advantages or the preference accorded to the ones for which the shrewdest traffic managers worked. The traffic manager in this period was regarded as a very real influence in the executive circles of the industry and, accordingly, was highly ranked in the organization.

### Regulatory Legislation

It was during these early days of traffic management that laws were passed regulating railroad rates in many states, and creating commissions to administer them. This transportation legislation brought about the beginning of traffic management as we know it today. The growth of traffic management can, therefore, be traced along with the development of transportation regulation. A discussion of this regulation down to its present form will shed light also upon many of the reasons for maintaining an adequate supervision over the transportation activities of any enterprise.

The following important provisions were contained in the Act to Regulate Commerce of 1887:

# Motor Cargo...



## Standardized System of Truck Taxation Recommended by Western ATA Conference

Action designed to achieve a uniform program of truck taxation, reciprocity, and regulation in various states featured the seventh annual meeting of the Western States Conference of the American Trucking Assn. recently at the Hotel Biltmore, Los Angeles.

Because of ODT travel restrictions, attendance was limited to 50 delegates. Twelve truck associations in 11 western states were represented. George L. Norstrom, president, Ore. Assn., presided.

Inequities in taxation imposed on truck operators through third structure and special taxes were cited. The conference went on record as opposing discriminatory taxation of trucks in addition to the classifications of registration license fees and fuel taxes. The conference adopted the view that tax structures in the various states should be equalized by eliminating all special taxes on the trucking industry.

A resolution was unanimously approved recommending that ATA members urge their state legislatures to repeal all existing third structure taxes; that fuel tax returns be used exclusively for construction, maintenance and administration of public roads; and that new legislation be enacted so that motor fuel used would be the sole measure on which truck taxation would be based.

The suggestion was advanced that the ICC be established as the licensing agency for interstate carriers, with the fees derived therefrom prorated to the states.

Ted Rodgers, national president, ATA, stressed the need for lower interest rates and longer payment periods on truck loans as one of the primary goals of the industry.

Mr. Rodgers cited three faults with present methods of financing truck loans. The down payment, he said is too large, the period of payments too short, and the rate of interest too high.

Declaring that all indications point to the fact that bankers throughout the country have adopted a more receptive attitude toward truck financing, Mr. Rodgers declared that any truck operator who pays more than four per cent interest on a basis of more than four years is not taking advantage of the present situation.

The national president said that the poor financial rating of the trucking industry today is the result of broken promises, inefficient business methods, and lack of honesty on the part of operators in the early days of the industry.

### Double Success Story

In 1931, A. R. Harris organized the A.C.E. Transportation Co., Akron, with an investment of \$125. His business prospered until it developed into a \$250,000 venture with 46 units serving New England and the seaboard states.

A man named B. C. Hartline hauled his first load of freight out of Akron on one of the Harris trucks some time ago.

Recently, B. C. Hartline and his brother, H. C. Hartline, purchased the company from Mr. Harris. (Kline)

This rating is gradually improving. Mr. Rodgers pointed out, as bankers learn that present day truck operators, on the whole, are reputable business men operating soundly and efficiently.

Discussing the need for improvement in claim handling, Mr. Rodgers declared "the trucking industry is behind the eight ball in the matter of claims." The chaos in claims, he said, has developed because of inefficiency and carelessness, and must be improved by the industry itself.

On the subject of air cargo, Mr. Rodgers declared that the trucking industry "will land on the right side of

the ledger." Truckers, he pointed out, will share in a large volume of ground hauling from plane side to consignee. The ATA is on record as standing ready to cooperate in every possible way with the air cargo industry. He expressed the opinion that, since air cargo rates are approximately five times higher than surface hauling rates, truck operators should not seriously be affected by air cargo for at least the next decade. (Herr)

### Battery's Life Extended With Care

Unless automotive jobbers and dealers seriously take it upon themselves to initiate a definite program of battery conservation in their shops, the number of cars taken off the road this year will greatly increase, due to a shortage of replacement batteries.

Realizing this situation, in a recent bulletin to all Edison jobbers, the Emark Division of Thomas A. Edison, Inc., Kearney, N. J., listed the following steps to be taken if motorists are to make their batteries last a normal life under restricted driving conditions:

1. Keep the water level above the tops of the separators. Add only pure water.
2. Keep battery free from dirt, grease and corrosion.
3. Check connections, cables and carriers for wear.
4. Check generator charging rate. If dealer is not equipped for this adjustment he should recommend a shop who can.

## Manufacturers Say They Can Meet Demand For 188,700 Extra Truck Units in 1945

The truck industry will be able to meet the demands of the additional 1945 program, members of the Truck Manufacturers Industry Advisory Committee indicated at their meeting in Washington, D. C., recently, the War Production Board reported.

The additional schedule for the second half of 1945, over and above the already announced commercial program, was presented to the industry, WPB said. The program calls for 188,700 trucks, including 85,000 light trucks, 95,000 medium, 5,000 light-heavy, 3,000 heavy, and 700 off-highway trucks.

Officials asked the industry to present, as of June 1, an over-all estimate of their production possibilities, with definite statements as to their assurance of obtaining components, especially if their purveyors' order boards have been "frozen" by WPB.

It was emphasized that these estimates should not be based on the 188,700 figure given as the additional 1945 program, but manufacturers should indicate what they feel they can build, so that if additional materials become available the program can be further increased.

It was emphasized that this additional program must not be permitted to interfere in any way with military schedules, nor with the already scheduled commercial program. It is to be in addition to these programs and, if necessary will be put aside if it interferes with either.

With reference to "frozen" order boards, WPB officials said that the agency had information on the capacity of the plants concerned and would, if necessary, check with the particular companies if the truck manufacturers' estimates of needs exceed the known capacity.



## Freight Bureau Rejects Shipper Proposals

Shipper proposals calling for carriers to perform pickup and delivery service on heavy and bulky freight were rejected by the central committee of the Central States Motor Freight Bureau, Chicago, recently.

The central committee commented that adoption of the proposals would cause the carriers to revert to the old conditions under which they could never know in advance the size or weight of the articles comprising a given shipment, and therefore, could not anticipate their labor needs.

## Motor Fuel Obtainable From Douglas Fir Waste

High grade anti-knock motor fuel can be obtained from Douglas fir sawmill waste, three Oregon State College scientists recently agreed in Corvallis. Sawmill waste can be made into charcoal, the by-product of which is wood tar. Wood tar is similar to coal tar.

The three scientists, Paul G. Schrafer, Bert E. Christensen and Leo Friedman, declared that British chemists have found that by "cracking" Douglas fir wood tar, high-test motor fuel can be obtained. It was estimated that 25,000,000 gal. of fuel could be produced from all the annual waste of Douglas fir in the American northwest. (Haskell)

## Million a Day Goes 'Up in Smoke' Through Neglect of Fire Hazards

### 15,236,309 Tons of Cargo Shipped to Pacific Fighters

Figures released by the War Shipping Administration, San Francisco, reveal that 15,236,309 long tons of dry cargo were shipped from Pacific Coast ports to American fighting men and to members of the United Nations during 1944. West Coast ports also shipped a total of 3,600,000 tons of bulk liquid cargo, exclusive of military supplies, last year, the report disclosed.

Leading west coast port in cargo movement was San Francisco, from which 7,921,225 tons of dry cargo and 1,493,000 tons of liquid cargo were shipped. A total of 2,481,620 dry tons and 2,107,000 liquid tons went out from southern California ports, 2,976,467 dry tons from Puget Sound ports, and 1,856,997 tons from Columbia River ports. (Herr)

More than \$800 per minute, or over a million dollars per day, goes up in smoke because of carelessness, Elmer F. Reske, manager of the Cook County Inspection Bureau, asserted at a recent meeting of the Greater Chicago Safety Council. From April, 1944, to March, 1945, fire losses in the nation increased 9.6 per cent over the previous 12-month period, he pointed out.

During this war, as in World War I, each year has shown an increase in fire losses over the preceding year, he continued. Study of Chicago conditions reveals that fire increases are caused by material shortages, resulting in inferior construction; inadequate automatic sprinkler protection in large area buildings; storage of products in a single warehouse when production is ahead of shipping schedules, and neglect of common fire hazards. He emphasized the importance of proper instruction of watchmen and observance of standard fire precautions.

"We must dispel the general attitude that big fires are inevitable in time of war," concluded Mr. Reske. "The record indicates that if fundamentals of fire prevention and protection are intelligently applied, fire losses can be reduced." (Slawson)

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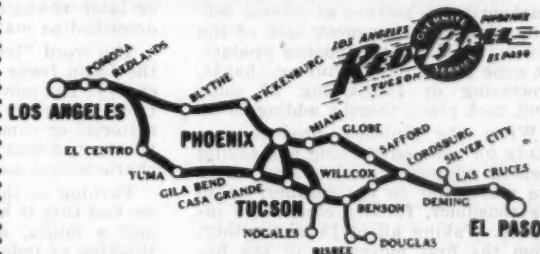
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# Cost Factors in Distribution

**Management in any company can readily ascertain what percentage its own transportation cost is of its total cost, but this is not enough. Management should insist on a setting aside of the major groups which make up total transportation cost. If and when management does this it will be in a position to begin a study which should produce a reduction in transportation cost, thereby helping to cut the cost of over-all distribution.**

By HENRY G. ELWELL  
Traffic Consultant

• • •

EVERY one of us at times refers to costs of "production," or of "transportation," or of "distribution," but it is questionable whether many of us appreciate the true meaning of each of these general terms.

For instance, certain types of paper are made of rags. The moment a bale of rags leaves the possession of, say, the importer until the paper reaches the consumer's hands, neither the rags nor the paper is moved the slightest distance, or handled in any way, without cost. There is the cost of transporting the baled rags from point of origin to where they are to be converted. The rags undergo processing and finally emerge as paper. The latter is then sold and shipped to the wholesaler, and on to the retailer who in turn sells it and delivers it to the user or the consumer.

## Accrual of Costs

Now, from start to finish, costs of transportation accrued at several definite stages of movement both of the raw material and the finished product. At some point, manufacturing, that is, processing or fabricating of some kind, took place, thereby adding costs.

When the finished product was ready for sale, advertising and selling created additional costs. And, from the wholesaler to the retailer, on to the consumer, further costs were incurred. Taking all of these together, from the first movement of the finished product, we have the cost of distribution as it relates to one particular line of endeavor.

Any other raw material and finished product will give the same result. No material can be moved and manufactured into a finished product without cost arising.

The fact as presented in the preceding paragraph is universally agreed upon and accepted without question because it is obvious. But, a difference of opinion frequently arises when discussing these costs. What parts make up the cost of transportation?

What parts make up the cost of manufacturing? What parts make up the cost of distribution? It is the raising of these inquiries which brings about an expression of divergent views. Why? Is it not, perhaps, because of lack of a clear comprehension of the purport of the words transportation, manufacturing, and distribution, more especially the term distribution? Let us, therefore, examine these three words.

## Three Words Examined

The word "manufacture" comes from the Latin *manus* (the hand) and *facio* (to make). When the word originally came into use everything was handmade. Later, machinery took the place of hands, but the word continued in use to designate made products, whether made by hand or by machinery. Therefore, any process by which any material is made into something else, with increased value, or later re-changed, can properly be described as manufacturing.

The word "transportation" is from the Latin *trans* (over) and *porto* (to carry). The movement (carrying over from one place to another) of any material or commodity or product by whatever means or agency is correctly characterized as transportation.

Turning to the word "distribution" we find that it has a twofold, a major and a minor, application. First, in thinking of industry collectively, on a nation-wide or international scale, the word "distribution" may suitably be applied to the over-all transportation of all commodities, raw materials, and finished goods. Thus, "distribution starts with the movement of raw materials and ends only when a finished product has reached its ultimate destination, the final user or consumer." However, it has a more restricted meaning in the case of an individual business concern. Being derived from the Latin *dis* (a parting from) and *tribuo* (to assign) it literally signifies the act of disposing, or moving, by

allotments; the act of dealing out to others. This is exactly what is done when selling and shipping to customers by producers and handlers, whether farmers, processors, manufacturers, or jobbers, commission brokers, or others.

## Transportation Costs

Let us turn back to our rags and paper which we discussed at the opening of this article. The shipper (seller) of the baled rags distributes them as his finished product to the manufacturer of paper, but the latter receives the bales as raw material. For the sake of simplicity we shall assume that the buyer paid the freight charges. The manufacturer, thereby, incurred a direct cost due to movement, a cost of transportation. When the material arrived at the manufacturer's plant it had to be unloaded and moved from the point of delivery through the receiving and raw material warehouse or stock room, and up to the production department, all requiring movement. Again, a cost of transportation. Thus far the manufacturer has two main costs, added to the price of the material, (1) freight inwards, and (2) materials handling inwards; and because these costs increase the cost of raw material they unavoidably raise the total cost of production.

The paper is produced and it then moves from the production department to the finished products stock room, or directly to the freight car or a truck for immediate shipment. Perhaps the shipment of paper is forwarded to a public warehouse for later allocation, or it is sent directly to a wholesaler or jobber. In any event, movement has again resulted in cost of transportation, and two more marked costs have developed, (3) materials handling outwards, and (4) freight outwards; and because these costs have arisen they inexorably increase the total cost of distribution of the finished product.

The four, freight inwards, materials handling inwards, materials handling outwards, and freight outwards, make up the manufacturer's total cost of transportation. Transporting the raw materials and finished products was indispensable. There would be no cost if movement (transportation) were not involved, but if it were absent there would be no production or distribution. This in itself points to the supreme importance of transportation and the value of studying and reviewing the costs.

## Effective Action

In order to furnish a correct listing of the transportation costs of an industrial establishment, the cost accounting department segregates, on a monthly basis, all items pertaining to the movement of raw materials and finished products used and made by the company. The cost accounting department executes this segregation before allocating transportation costs to "production" or "distribution" accounts. This is done in order to present to the management an ac-

curate picture of detailed costs as well as the total. The cost accounting department separates the items of cost of transportation, in a manner similar to that in which it breaks down cost of factory production, cost of advertising, cost of selling, etc., to assist management in arriving at decisions based on definite information.

The foregoing suggests the practical and effective plan of action. Unfortunately, though, the thorough presentation of cost of transportation as outlined above is not followed by the majority of cost accounting departments. Too often, one finds the cost of freight and materials handling thrown directly into production or distribution costs; or even worse, immediately charged off as "freight" or "transportation" as part of the general "burden" or "overhead." This misunderstanding of the legitimate influence of cost of transportation prevents the carrying out of any solid study, review, and control of the elements which constitute the total.

### Not Good Practice

It may be accepted current cost accounting procedure for a cost accounting department to "bury" transportation costs without first isolating them for monthly examination and analysis by the other interested departments of a company. Neverthe-

less, it is not good practice no matter how brightly the cost accounting department may try to explain the reason.

In regard to the question of scrutinizing all costs, including cost of transportation, it is interesting to find that "way back in 1875 H. L. Reade stated:

"Goods are always made cheapest at a mill where an exact cost-sheet is made out every month. Little savings about a mill will sometimes enable a company to make dividends, when under other circumstances it could not."

Well, it is impossible to "make out an exact cost-sheet" where details of cost of transportation are not shown. Of course, a cost-sheet can be prepared without segregating transportation costs, but it will fail to provide for finding the "little savings which sometimes enable a company to make dividends." It will fail to reach down to find big savings, too.

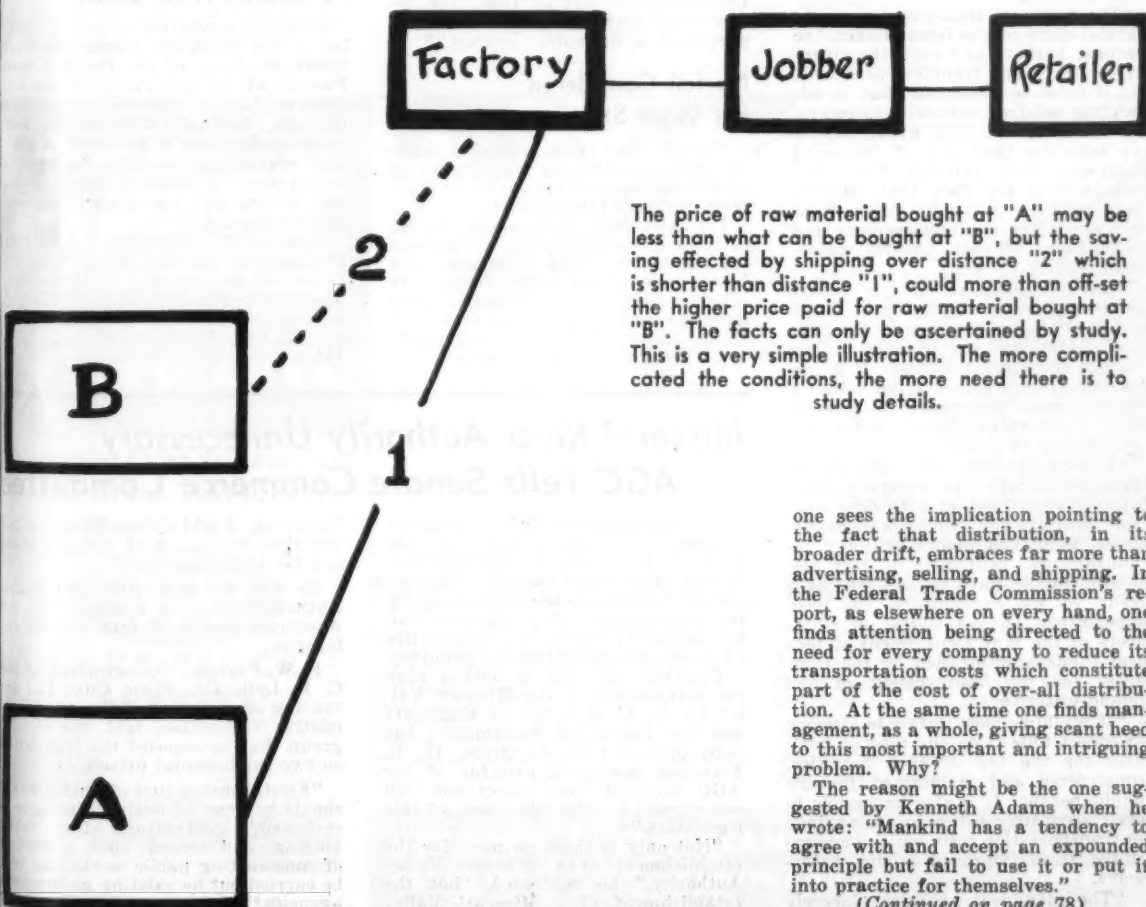
The principle which Mr. Reade stated over 70 years ago in relation to costs still holds good. Actually, it is even more relevant today under the tremendous pressure of competitive conditions which will increase during the postwar period. Cost of transportation should be given attention.

This is stressed in a report, "Methods and Costs of Distribution of Important Food Products," issued some

months ago by the Federal Trade Commission. While the report appertains to certain foods, the basic ideas contained in it relate to the distribution problems of manufacturers and shippers of many other products. Among other things the report shows that in general freight charges on processed foods range from 3.23c. to 24.67c. per dollar of sales. It should be noted that these figures refer only to "freight outwards" of the cases cited in the report. Apparently other costs of transportation are not included. Quoting from the report:

"... the principal effort of producers to increase their proceeds must be directed toward seeking the most direct and economical methods and channels of distribution. Transportation charges constitute an important element. . . . The charges begin to accumulate against foods even before the farmer sells his product. For example, transportation charges on fertilizer, farm machinery, seeds and purchased feeds are in the cost of farm products. Other transportation charges accrue as products move to the processor and from the processor . . . serve to indicate how important the transportation charge is to the wholesale value of products at disconnected and often unrelated steps in the production and distribution of products."

From the quotation above given



one sees the implication pointing to the fact that distribution, in its broader drift, embraces far more than advertising, selling, and shipping. In the Federal Trade Commission's report, as elsewhere on every hand, one finds attention being directed to the need for every company to reduce its transportation costs which constitute part of the cost of over-all distribution. At the same time one finds management, as a whole, giving scant heed to this most important and intriguing problem. Why?

The reason might be the one suggested by Kenneth Adams when he wrote: "Mankind has a tendency to agree with and accept an expounded principle but fail to use it or put it into practice for themselves."

(Continued on page 78)



# Waterways and Terminals...



## Thompson Calls Toll Proposals Unfair At Washington Transportation Meeting

**B**RANDING as "unfair" the proposals sponsored by the railroads to levy government tolls on inland waterways and other public transportation facilities, Chester C. Thompson, president, American Waterways Operators, Inc., told the conference on "Transportation in War and Peace," in Washington, D. C., recently that public waterways expenditures were in the interests of the national defense.

"The railroads are advocating the application of tolls for the use of the improved waterways," he said. "The president of one of the great railroad systems of the nation is quoted as recently stating that tolls should only be assessed for the use of artificial waterways and not for the use of natural waterways.

"The railroads themselves are substantial users of the Great Lakes, the seacoast harbors and even the rivers for car ferry and transfer operations, and it must be presumed that in advocating toll-free natural waterways, the railroads want to avoid paying any tolls for their use of improved waterways and harbors. This notwithstanding the fact that millions upon millions in public funds have been spent for the improvement and maintenance of such natural waterways.

"The improvement of the inland waterways, including the Great Lakes and the harbors, has been in the public interest and particularly in the interest of national defense. It is impossible to even estimate the value of the improved waterways in time of war, or the value thereof to the nation in time of peace.

"The navigation improvements in these waterways has naturally been involved in connection with flood control projects on such waterways. Cities, industrial plants, military establishments, railroads, in fact the general public, have all benefited as a result of the expenditure, the wise expenditure by the Corps of Engineers of the War Department of federal funds appropriated by the Congress for the improvement of the inland waterways.

"It would be most unfair to attempt to collect tolls from one type of business for the use of such facilities, constructed and maintained for the public benefit. It is also impossible to even accurately estimate the savings in transportation costs which have resulted from improved inland waterways.

"The inland water carriers sincerely

*In a recent address in Washington, D. C., before the conference on "Transportation in War and Peace," Chester C. Thompson, president, American Waterways Operators, Inc., expressed his views on the question of proposed government tolls on inland waterways. Part of his address is presented on this page. For the opinions of rail, air and motor representatives on this subject, see DandW, June, 1945, p. 44.—The Editor.*

believe that all types of transportation have their rightful place in the economy of the postwar United States, that each serves a useful purpose and that, as Congress declared in the Transportation Act of 1940, 'the inherent advantage of each should be preserved in the public interest.'

### Norfolk Considered For Sugar Storage

Norfolk may again become a sugar storage port after the war, according to reports in governmental and shipping circles in that seaport.

Inquiries have been made by one or more of the large refineries regarding the disposition of warehouses now being used by the armed forces. In prewar days, these terminals were used for storing sugar imported from Cuba, Puerto Rico, and occasionally from the Philippines. (Toles)

## Missouri River Authority Unnecessary, AGC Tells Senate Commerce Committee

Provision has already been made by Congress for development of the Missouri River basin, representatives of the Associated General Contractors of America contended in opposing the establishment of a Missouri Valley Authority before a subcommittee of the Senate Committee on Commerce.

Pointing out that a unified plan for development of the Missouri Valley by the U. S. Corps of Engineers and the Bureau of Reclamation has been approved by Congress, H. E. Foreman, managing director of the AGC declared "our association can see no need for the enactment of this legislation."

"Not only is there no need for the establishment of a Missouri Valley Authority," he continued, "but the establishment of a Missouri Valley

### New Pool Car Terminal Opened in Vancouver

Bekins Moving and Storage Co.'s facilities to receive pool-car shipments have recently been augmented by a new pool-car terminal constructed by authority of the Canadian government, at Vancouver. The building adds 13,000 sq. ft. of space to Bekins Vancouver facilities for handling in bound rail shipments.

The terminal is constructed with concrete walls and floors, and connects to all railroads with a spur track. Both inbound and outbound shipments of household goods will be accommodated. Packing and crating can be done in the building.

The Bekins organization is now celebrating its Golden Anniversary, having been established on the Pacific coast over 50 years ago.

### Port Stewards' Assn. Formed on West Coast

Shipping executives at recent meeting in San Francisco formed the Port Stewards' Assn. of the Pacific Coast. Purpose of the new group, it was announced, is to provide a medium through which port stewards can meet to exchange views on problems of common interest, and to strive for greater cooperation on matters affecting the war effort and peacetime reconversion of the industry.

Joseph J. Robinson, American President Lines, was elected president. Other officers include K. H. Lindquist, Moore-McCormack Lines, E. N. Banks, McCormack Steamship Co., and P. F. Cannon, Matson Line (Herr)

Authority would delay flood control and conservation work already planned for that area."

He also contended that the Valley Authority plan is contrary to the American system of free private enterprise.

F. W. Parrott, vice president of the C. F. Lytle Co., Sioux City, Ia., appearing as chairman of the AGC Legislative Committee, told the Senate group that he opposed the legislation on two fundamental principles.

"First, construction of public works should be done by letting contracts to responsible contractors after public bidding, and second, such a method of constructing public works can best be carried out by existing government agencies."

## West Coast Ports Fight Federal Tideland Grants

W. Reginald Jones, legal adviser, port of Oakland, Cal., has been granted leave of absence to go to Washington, D. C., as a representative of the American Assn. of Port Authorities in the action precipitated by the challenge of west coast ports to federal administrative tactics which may have the eventual effect of beclouding title to all municipal waterfront properties.

West Coast port authorities contend that waterfront properties in Oakland and San Francisco are threatened by the Department of Interior's decision to grant oil leases on tidelands adjacent to Seal Beach, Los Angeles County. Mr. Jones declared that this involves the question of who owns the tidelands. Courts for the past 100 years have held that titles are vested in the states or their grantees.

If the contention of Secretary of Interior Harold Ickes that the oil lands on the Seal Beach waterfront belong to the government is permitted to stand unchallenged, Mr. Jones pointed out, title to other properties reclaimed by cities throughout the U. S. is in jeopardy. (Herr)

## New West Coast Steamship Line Proposed For Cargo Shipments to United Kingdom

Operation of a semi-monthly general cargo and refrigerated cargo service between Pacific Coast ports and the United Kingdom is proposed by the newly formed American-Pacific Steamship Co. of Los Angeles, for which articles of incorporation, calling for capital stock of \$3,000,000, were recently filed at Sacramento.

The board of directors of the new company is headed by Harry S. Scott, president, General Steamship Corp., San Francisco. Other members are Eugene Overton, president, Los Angeles Board of Harbor Commissioners; L. K. Vermille, Los Angeles industrialist; John A. Cosmas, Santa Monica, president, Standard Shipbuilding Corp.; Emerson Spear, Pasadena, vice president, Pacific Wire Rope Co.; Willard W. Keith, Beverly Hills, president, Cosgrove & Co.; and Morgan Adams, Los Angeles financier.

Also on the board of directors are R. V. Windquist, San Francisco, vice-

president, General Steamship Corp.; and Dwight Hill, Pacific Coast representative, Moeller Line, London. Mr. Scott has been named president of the new company.

Mr. Overton, an admiralty lawyer, who filed the application for incorporation, announced that a petition is to be submitted to the U. S. Maritime Commission shortly for construction of six modified C-2 type ships. Three are to be purchased outright, and three are to be used on a time-charter basis with option to purchase. The ships are expected to be of 9,000 dead-weight tons each. About 400,000 cu. ft. of space is to be used for general cargo and about 100,000 cu. ft. converted for refrigerated cargo on each ship.

Los Angeles will be the home port. Ports of call, it was announced, will include San Francisco, Seattle, London, Liverpool and Manchester. (Herr)

## Port of N. Y. Authority Plans Chicago Office

Howard S. Cullman, chairman, announced recently that the commissioners of The Port of New York Authority have approved establishment of a Chicago office of the agency to help prevent the divergence of middle

western commerce to Gulf and other north Atlantic ports.

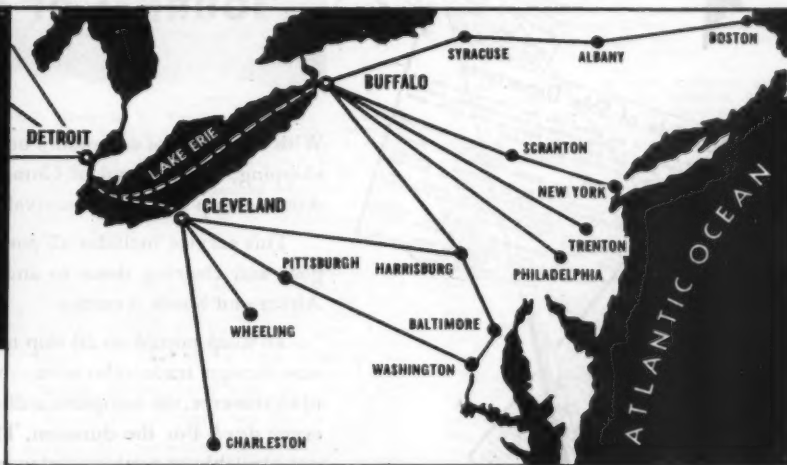
"One of every ten persons gainfully employed in the metropolitan area in peacetime is, directly or indirectly, dependent upon the port of New York.

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# People . . .



Edward W. Oescher has been elected to succeed the late Warren T. Justice as president of the Pennsylvania Warehousing and Safe Deposit Co., Philadelphia. Ralph Earle is assistant to the president and Reginald P. Ford is secretary-treasurer.

Col. Albert B. Drake, president of Lackawanna Warehouse Co., Inc., Jersey City, N. J., and former director, Storage Division, U. S. Army Service Forces, is now located in the Pacific theater of war, with the following address: APO 707, Hdq. AFWESPAC, San Francisco, Cal. His serial number is 4486264.

L. J. Schulte has been elected chairman of the board of directors and William C. Cassens president and secretary of the St. Louis Refrigerating and Cold Storage Co., St. Louis, Mo.

L. C. Allman, vice president, Fruehauf Trailer Co., recently addressed the Akron Traffic Club at the Mayflower Hotel, Akron, O., on "Highway Transportation of Tomorrow."

Michigan Trucking Assn. through its board of governors and executive committee, announces the appointment of Miss Florence M. Kieley as managing director. Miss Kieley has assumed her new duties at the main office of the Association in the Fort Shelby Hotel, Detroit.

Dean Jaynes, t.m., H. C. Knoke & Co., is new president of the Clearing-Cicero Traffic Conference. Others elected for the new year are: vice president, Ray Hard, Belt Railroad of Chicago; secretary, Hugh Crawford, Johnson & Johnson Co.; treasurer, Frank Heles, Athey Truss Wheel Co.; directors, Ray Every, Chicago & Northwestern R. R., and Floyd Robertson, Merchants Shippers Assn. (Slawson)

William R. Moffat has succeeded William O. Thorndley as dock superintendent to have charge of operation of Seattle's oldest waterfront pier. He joined Puget Sound Navigation Co. in 1922. (Littelljohn)

Raymond J. Fitnas has been named a vice president, and John S. Slick, assistant secretary and assistant treasurer, of Graham-Paige Motors Corp. (Kline)

At the recent 35th annual meeting of Minnesota-Northwest Warehousemen's Assn. held in Minneapolis, these officials were elected: president, Lou H. Lackore; vice president, Stanley W. Brooks; treasurer, George LaBelle; secretary, A. L. Carr; executive secretary, Ferris B. Martin.

Mark Marshall has resigned as secretary-manager, Southwest Warehouse and Transfermen's Assn. Assistant secretary Beatrice Parker will carry on the work with Roscoe L. Carnrike as acting secretary.

Commerce and Industry Assn. of New York's newly named officers are: Allan M. Pope, president; Herbert L. Carpenter, vice president; John K. Whitaker, vice president; Francis L. Whitmarsh, vice president; Samuel D. Leidesdorf, treasurer; Thomas Jefferson Miley, secretary.

W. E. Dent, recently released by the U. S. Coast Guard, has returned to Smith's Transfer and Storage Co., Washington, D. C., of which he was formerly general manager.

Arthur B. Swesey, 68, manager at San Francisco for Cunard White Star Line until 1938. He was affiliated with the firm for 47 years until his retirement seven years ago, managing the San Francisco office from 1919 to 1938. (Herr)

Vern R. Drum, former vice president in charge of manufacturing, Willys-Overland Motors, Inc., Toledo, has been named vice

president and general manager of the Warren City Manufacturing Co., Warren, O., subsidiary of Graham-Paige Motors Corp. (Kline)

Col. Graham B. Trainer, just released from the Army, has been named general manager, Chrysler Corp.'s China service contract, and Wendell H. Welch has been named manager, executive division of the contract in Detroit. (Kline)

M. LeRoy Stoner, formerly chief of standards, General Motors Eastern Aircraft Division, has been appointed staff engineer, Aeronautics Department, Society of Automotive Engineers, New York.

Robert A. Rogers has been named manager, Southern Transfer & Storage Co., San Antonio, Tex. He replaces A. D. Hood, who we understand has bought Security Bonded Warehousing Co., San Antonio.

Appointment of Donald A. Duff to position of executive assistant in charge of traffic and sales has been announced by Continental Air Lines, Inc.

Four executives of Shellmar Products Co., Mt. Vernon, O., have resigned to form a new organization for manufacturing packages and plastics. They are Paul M. Giffman, Mt. Vernon, vice president and general manager; Bert W. Kelsey, Mt. Vernon, plant manager; Fred Winslow, Pasadena, Cal., west coast general manager; and J. H. Gauss, Chicago, general sales manager. The new firm will take over Shellmar affiliates in Ohio, Technical Service Co., Toledo, and Western Products Co., Newark, with an office and engineering department in Mt. Vernon. (Kline)

Peter A. Buchman, vice president, has been elected president, American Ice Co., New York City, succeeding Charles C. Small, now chairman. (Kline)

Kenneth T. Carlsen has been appointed traffic manager for all California activities of Consolidated Steel Corp. of Los Angeles, succeeding James Hartzog, who has moved to Houston, Tex., to enter business for himself. George O. Cumberland has been named assistant traffic manager, in charge of shipyard traffic movements at Wilmington and Long Beach, Cal. (Herr)

Principal buyers of leading business houses, commercial concerns and industrial plants of the state of Washington recently held their annual meeting and elected new officers as follows to head the Purchasing Agents Assn. of Washington: Herbert F. Price, Bethlehem Steel Co., president; R. Guy Frederick, of I. F. Laucks, Inc., first vice president; H. Gordon Ainslie, Barde Steel Co., second vice president; C. R. Ragsdale, Seattle Tent & Awning Co., secretary, and Stanley E. Ringheim, Crown Zellerbach Corp., treasurer. Upon his retirement as president, D. P. Brewer, of the Trumbull Electric Co., became national director to represent the National Association of Purchasing Agents in this district. Following are new trustees: George S. Drury, of the Northwest Lead Co.; Frank C. Bergmann, Pacific Coast Coal Co.; Woodrow W. Anderson, W. P. Fuller & Co., and Charles P. Krueger, Western Gear Works. (Littelljohn)

J. P. Ebert, former head of passenger sales, Transcontinental and Western Air, for the Central region, has been named director of sales and service for the region. (Kline)

Donald Stuart has been appointed assistant parts and accessories sales manager, Pontiac Motor Division, General Motors Corp. (Kline)

E. J. Foley, assistant to vice president O. M. Mosier, of American Airlines, has been elected to the board of governors, New York Metropolitan Section, Society of Automotive Engineers. He has been active in the section

for more than five years and serves as vice president of its Air Transport Activity.

New appointments in the Electronics Department of General Electric Co. include Paul L. Chamberlain as manager of sales, receiver division, with headquarters at Bridgeport, Conn.; Henry A. Crossland as assistant to the manager, government division, with headquarters at Washington, D. C., and James D. McLean as manager of sales, transmitter division, headquarters at Schenectady, N. Y. (Kline)

Fred Enders has been elected president of United Paperboard Co., Thomson, N. Y., succeeding Leeds Mitchell, resigned. H. W. Kephart was named vice president in charge of sales, and P. M. Loddengaard, vice president in charge of production. John Drew resigned as vice president and general manager, and Mitchell Todd as vice president and secretary. (Kline)

F. Z. Wakefield, traffic manager, Dicalite Co., has been named secretary-treasurer of the Los Angeles Transportation Club, succeeding David Shearer, who was elevated to second vice president because of the resignation of Clifford Malsie, now serving with United Nations Relief and Rehabilitation Administration. (Herr)

T. J. Manning, former controller, Cincinnati plant of Wright Aeronautical Corp., has been appointed general controller of Graham-Paige Motors Corp. and its Ohio subsidiary, Warren City Mfg. Co.

John C. Dopke, formerly assistant sales manager of the automotive division, has been named sales manager of the division of A. O. Smith Corp., Milwaukee, with Urban T. Kuechle and Milton E. Morgan named assistant sales managers; Ernest A. Barlow, manager of the order department; and John P. Kelley, sales counsellor. (Kline)

Tom F. Brown is now assistant general sales manager of Chevrolet, effective June 15, in charge of parts and accessory merchandising, warehousing and distribution, succeeding Wendell G. Lewellen, now an executive of General Motors Corp. (Kline)

Women's Traffic Club of Los Angeles has elected the following new officers: Lucille Jaeger, Globe Mills, president; Evelyn Hinz, Pacific Coast Terminal Warehouse, first vice president; Emma Kents, Union Pacific Railroad, second vice president; Charles Cullum, City Transportation Co., recording secretary; Nellie Jones, Cantlay & Tansola, corresponding secretary; Ethelwyn McIntyre, corresponding secretary; Esther Ellerbrake, Lockheed Aircraft Corp., sergeant-at-arms. (Herr)

Donald S. Woods has become sales manager of the Evannair furnace and water heater section of the Evannair Division of Evans Products Co. He was previously with the War Production Board. (Kline)

P. R. Mork, formerly vice president in charge of sales, has been elected executive vice president of Crane Co., Chicago, which he joined in 1901. J. A. Dwyer is now vice president in charge of sales. (Kline)

J. H. Letache has been advanced to vice president in charge of sales and distribution division of H. W. Heinz Co., Pittsburgh, succeeding W. M. McKillop, retired. (Kline)

Eric A. Johnston, president, United States Chamber of Commerce, has been elected a director of United Air Lines. Mr. Johnston takes the place of Sumner Sewall, who recently became president of the American Export Airlines. In addition he is president, Brown-Johnston Co., Columbia Electric Co., Columbia Electrical Instrument Co. and the Washington Brick and Lime Co., all of Spokane. He has been president of the United States Chamber of Commerce since 1942.

(Continued on page 75)

# Materials Handling Probabilities

(Continued from page 58)

necessary to guarantee a full week's pay for a three-day job, and provide a standby electrician for welding. The result was a \$1,400 bill to a customer for a job that might have cost \$250 in prewar days.

Production costs per car must be carefully kept at a predetermined level. That is one reason why older equipment may not be replaced as readily as the most efficient plant engineering might indicate. The huge size of an automotive line makes replacement a relatively rare procedure because of the large original investment.

The keynote of specialized development of handling equipment as the outstanding postwar development was struck by Louis I. Miner, sales engineer, Palmer-Bee Company, who said that "Functional applications will be materially enlarged over past practice."

## Few Structural Changes

New developments in handling equipment are likely to be in the metallurgical field rather than in mechanical design. Economies in the operation of equipment and much-increased longevity are anticipated, rather than radical structural changes. This does not mean, as it does in many consumer product fields, so much a shift to the well-publicized "new lighter metals," as to improvements in alloys.

Special purpose conveyors may well be expected. An interesting example is in the use of a special conveyor in connection with induction heat treating. In numerous instances, the process may be in progress while the work is in transit. One of the most spectacular prewar developments of this type was in the huge clamshell drying ovens used in finishing Ford bodies. The shells traveled on separate pairs of track and enclosed an entire body with infra-red lamps while it traveled a prescribed distance down the main conveyor line. Infra-red was used here, but it is expected that other types of heat treatment will be used in postwar applications to other fields. This type of development, combining the processing with progress along the line, is typical of anticipated future steps in handling.

Another interesting development in the conveyor field is the use of a trolley-type conveyor with a fleet of small trucks or trailers. This is adapted for terminal operation, for warehouses, in making up orders, and in diversified manufacturing operations. The conveyor line is installed to touch all shipping, receiving, or distributing points, as the case may be. One or more trucks are labeled for each point of destination, and goods may be rapidly sorted and distributed. At the Tenth Street Railway Express Terminal, New York, this installation greatly expedited the handling of the Christmas rush. A peak of 89,000

pieces of express from 755 incoming cars were handled and redespached within 22 hr. An installation at Jacksonville, designed especially to handle orange shipments, has a length of 3642 ft., and utilizes 496 trailers.

## Significant Development

Individual trucks may be detached from the trolley line readily when loading or shipping needs require. The line moves at 125 ft.p.m. in normal operation, which is slow enough to permit loading.

Another significant handling development is the use of specialized dunnage, adapted to handling a particular type of item. Essentially, this is illustrated in a system which was adopted in principle by Fisher Body Co. before the war, but little developed until now. It is at present being adopted by major producers, including Detroit Transmission, Cadillac, International Harvester, du Pont, and General Electric. The installation was developed by Mechanical Handling Systems.

Containers, or work carriers, are built to standard width and length; height and fittings differ according to the purpose for which they are specially designed. The width of a box car, 8 ft. by 11 ft., is the basic standard for the Fisher installation. The containers may be readily carried on either car or truck. They may be dismantled, so that the containers for ten carloads of goods may be returned in one carload in a knocked-down state. They may be tiered 3 to 5 high, and can be handled readily by fork trucks. The expense of carpentry work for each carload shipment is eliminated, as well as is waste of lumber.

## Specialized Uses

The work carrier is constructed essentially of square tubing, and places the load upon the frame itself when it is handled or tiered, rather than on the contents. For this reason, it is believed likely to give serious com-

petition to pallets. Greater sturdiness of construction, over-all protection of contents, and ready adaptability to all types of shipment are reasons why this type of container appears to be finding much favor in automotive and other fields.

Specialized uses were made of these work carriers in handling airplane wing sections, which were slung on padded slings. Larger containers were used to protect easily damaged parts requiring careful handling, such as the plexiglass bombardier's compartment, or detachable gas tanks.

Their use in interplant shipments is indicated by their use by du Pont in nylon production. The nylon is made at one plant, and spun at another. The work carriers were designed in this instance as large racks to hold bobbins that can be placed right into the looms in the spinning plant. By the use of specially designed holding equipment, the parts remain rigidly in position during shipment.

## New Production

Greater importance of handling equipment is likely in new production. The auto plants, for instance, are moving toward decentralization. It is expected that more parts will be shipped out of Detroit in knocked-down condition, with assembly and processing completed elsewhere. There are three principal reasons for this, relatively lower labor costs in other areas, advantages in transportation costs through shipment in this manner, and the goodwill value of a local plant of a great company.

This move toward decentralization will mean more use of specially designed trucks and handling equipment, according to the product and the distance to be covered.

Some sections of the country, such as New England, which have been reluctant to adopt the use of widespread mechanical handling are showing a marked interest today, equipment men report. Some of this is the result of wartime experience in the handling systems necessary to turn out military products in adequate quantities. This experience will have an important influence on civilian production. How widely this influence may extend is suggested by the recent adoption of a conveyor system by a small company making scientific mirrors.

# Distribution and Materials Handling

(Continued from page 31)

dents, and chairmen of the boards, have seldom considered this subject important enough to direct their attention to it. Nor have they assigned men from their staffs to see what can be accomplished by better utilization of methods and equipment available to reduce the cost of handling operations.

## Distribution Era Ahead

If we are coming into an era of wider distribution, which seems to be the case, then we must integrate all factors of distribution. We shall need

better cooperation between departments within organizations as well as between plants and inter-organizations, and between the producers of one product and the consumers of that product.

Architects, engineers, production men, marketing analysts, sales managers, and the ultimate consumer are all interested in reducing the cost of distribution. The use of better methods and mechanical equipment on the multiple materials handling operations which are required will do much towards this end.



Fig. 100 Barrel Truck

Here is a good example of what a specially designed truck for a specific use can do to speed up the work and make it easier. Send for special circular on Fig. 100 Barrel Truck.



Fig. 500 Swivel Caster  
Nutting makes Semi-Steel and Rubber Tired Casters of every size and type.



RK Wheel with Hub Guard

Keeps grease in and dirt out, prevents damage to clothes or merchandise.

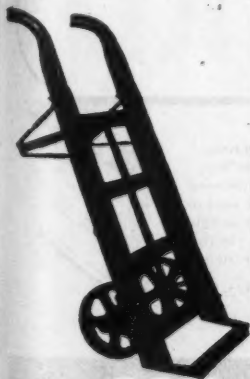


Fig. 16-24

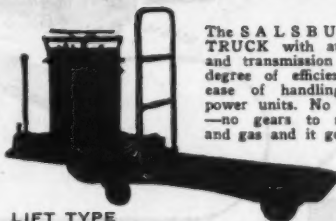
Western Pattern Truck with heavy axle, rugged hardwood frame and steam bent handles. Two center straps.

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### SALSBURY TURRET TRUCK ANOTHER *Nutting* PRODUCT



LIFT TYPE

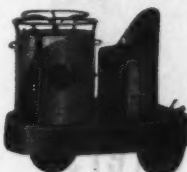
Ideal for terminals, warehouses, long hauls in yards, large plants, ramp work, loading and unloading freight cars, trucks, etc. Lift type handles standard skids.



CARGO TYPE

Cargo type for general utility use. Tractor type hauls trailer loads up to 12000 lbs. Light in weight, ample power for 2500 lbs. up to 15% grade, economical, low priced. Send for special circular on Salsbury Turret Truck. (Manufactured by Nutting under license of Salsbury Corp.)

TRACTOR TYPE



The SALSBURY TURRET TRUCK with automatic clutch and transmission creates a new degree of efficiency, speed and ease of handling in industrial power units. No clutch to work—no gears to shift—just feed and gas and it goes.



Fig. 418 Jack

Fig. 421 Live Skid

Provides low-cost storage for merchandise that must be quickly moved at any time. Many advantages—compare before you buy.



Fig. 138 Dolly

A heavy hardwood frame dolly for boxes, crates, etc. Double ball race swivel casters with metal or rubber tired wheels. Nutting makes all types of wood or steel dollies with capacities up to 4000 lbs.

Fig. 136 Non-Tilting Bar Handle Truck  
Capacity 2500-3000 lbs. A proven veteran for all-around service. Pressure-lubricated roller bearing wheels, heavy duty, rubber tires. Range of sizes.

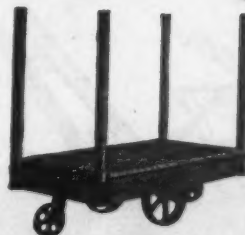


Fig. 11 Balance Type Truck

The veteran utility truck. Hardwood frame, platform stakes. Turns sharp corners, swivels in own diagonal length. 7 sizes.

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DESIGNERS AND MANUFACTURERS OF MATERIAL HANDLING EQUIPMENT

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74—D and W, July, 1945

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## MARSH

STENCIL MARKING

Don't assume you can't get equipment—Inquire.

## People . . .

(Continued from page 71)

Appointment of Vern R. Drum as vice president and general manager, Warren City Mfg. Co., subsidiary of Graham-Paige Motors Corp., has been announced by Joseph W. Fraser, Graham-Paige chairman, who has resumed the presidency of the Warren Company.

Earl F. Gregg has been appointed sales engineer, electrical tapes, eastern division, Minnesota Mining & Mfg. Co. In addition to direct account responsibility, he will have supervision of electrical tape salesmen in the Boston, New York, Buffalo, Philadelphia and High Point divisions. Mr. Gregg has been with MMM Co. in sales since 1941.

With a background of nearly 20 years as an executive in truck manufacturing and selling, Lee D. Cosart, former sales manager for the Dodge truck division of Chrysler Corp., has joined Joe Fisher as a partner in the Dodge-Plymouth dealership at Portland, Ore.

Appointment of Denis Murray as New York regional traffic manager for PCA is announced.

Stanley W. Bedell, connected with the Sperry Gyroscope Co. for 22 years, has been appointed export sales manager, it was announced. He also will continue as general field service director.

Parks Gilmore, formerly senior traffic representative, Transcontinental and Western Air Lines, has been named director of passenger sales for T.W.A.'s central region. (Kline)

Frank W. Godsey, Jr., has been named manager of the new products division, Westinghouse Electric Corp., Pittsburgh, replacing G. H. Woodward, transferred to South Philadelphia as manager of the firm's aviation gas turbine division. (Kline)

Election of Harvey C. Fruehauf, president, Fruehauf Trailer Co., as a director of the Automotive Council for War Production has been announced.

C. A. Richards, Jr., formerly with Foreign Economic Administration as chief of trade intelligence in the New York office, and also as assistant to the chief of trade intelligence in the Washington office, has recently been named by Sylvania Electric Products, Inc., International Division, as sales manager for Europe and Africa. (Kline)

Western Traffic Conference has the following new officials: president, Harold E. Smith, traffic manager, Western Auto Supply Co., Los Angeles; vice president, Herbert Albion, traffic manager, Montgomery & Ward Co., Oakland, Calif.; secretary-treasurer, Fred W. Ashion, traffic manager, Bullock's, Los Angeles; chairman, executive committee, Jesse Coyle, traffic manager, Butler Bros., San Francisco. Directors: southern division, Everett C. Valdes, traffic manager, Desmond's, Los Angeles; central division, John McCurdy, traffic manager, J. C. Bruener Co., Oakland; northern division, Gay Kelly, traffic manager, Sears, Roebuck & Co., Seattle, Wash. (Herr)

Col. A. B. (Al) Drake, formerly director, Storage Division, Army Service Forces, is now in the Pacific theater of war.

Newly elected officers of the Columbus Transportation Club are: Dana B. Goe, president; Larry Burgess, vice president; Ralph Allen, treasurer, and F. M. Brownell, re-named secretary. G. D. Cashner is chairman of the entertainment committee. (Kline)

James C. Shollenberger has been elected president of the Fort Wayne (Ind.) Transportation Club for the coming year. Others elected are: Virgil Johnson, vice president; H. J. Greiner, treasurer, and E. M. Berg and J. S. Andrews, members of the board of governors. (Kline)

Lt. Col. Lawrence O. Pautsch, who before entering service was president of Atlas Transfer Co. and assistant manager of the Atlas Storage Co., Milwaukee, is now chief of the storage division, Quartermaster Supply Section, at the Army Service Forces Depot, Columbus, O. (Kline)

Appointment of Harry D. Dodge as director



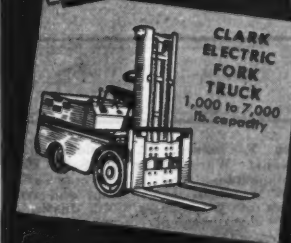
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Cited for extraordinary usefulness and efficiency beyond the call of duty—the flexible, tireless

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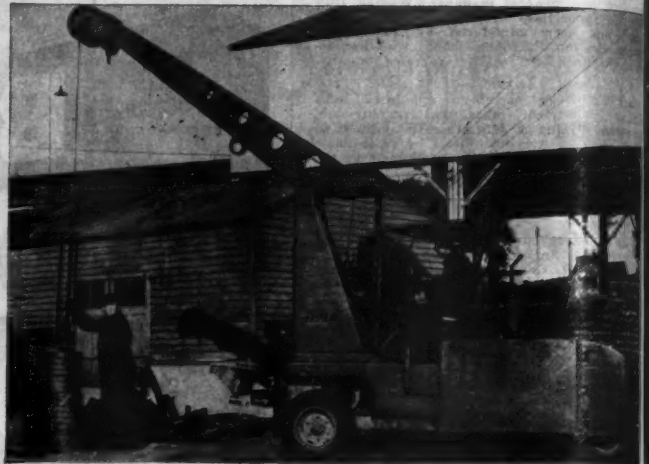
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And the HYSTER Karry Crane is easy to operate. Just one lever controls lifting and lowering. Loads may be hoisted or lowered while traveling. Trunnion steering makes maneuvering fast and easy. Pneumatic tires give traction anywhere. Five-position, quickly-adjustable boom provides for "difficult" reaches. For detailed information about this modern, general utility crane, write for catalog 693.

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WORLD'S LARGEST MANUFACTURER OF TRACTOR  
HOISTS AND WINCHES

of foreign sales for Graham-Paige Motors Corp. has been announced.

Ziegler Bars, formerly assistant sales manager, succeeds Dwight Paulhamus, resigned, as sales manager, Tri-Valley Packing Assn., San Francisco. (Kline)

Robert E. Harper, assistant director in charge of programs for the Office of Defense Transportation, has resigned to become advertising and publicity director of the National Assn. of Ice Industries in Washington. (Kline)

F. J. Hood, vice president of Ansul Chemical Co., Marinette, Wis., has been elected president, Refrigeration Equipment Mfrs. Assn., succeeding Arthur B. Schellenberg, president of Alco Valve Co., St. Louis. Other officers are: H. F. Speicher, Sporlan Valve Co., St. Louis, vice president; Edward M. Flannery, Bush Mfg. Co., Hartford, Conn., secretary, and J. A. Strachan, Weatherhead Co., Cleveland, treasurer. (Kline)

Dr. Emanuel Spielholz, formerly of F. E. Spielholz & Co., industrial engineers, has been named president of Ultima Frozen Foods Corp. The corporation opened a model market, the first of a planned 109 city-wide units, on June 16, at 70th St. and Lexington Ave., New York.

Harry D. Fenske has become director of transportation, Stran-Steel, N-A-X alloy divisions of Great Lakes Steel Corp. and of Hanna Furnace Corp. William H. Owen has been made traffic manager of the N-A-X alloy and Stran-Steel divisions. (Kline)

Thomas E. Harris, manager of foreign freight traffic, Illinois Central Railroad at Chicago, has retired, and has been succeeded by Oliver J. Williford, Jr., promoted from assistant manager to manager of the foreign department. Monroe J. Flicker, general agent at Milwaukee, succeeds Mr. Williford as assistant manager of foreign freight traffic at Chicago.

76—D and W, July, 1945

The Traffic & Transportation Club of Philadelphia held its combined election meeting and Past Presidents' night recently in the Hotel Benjamin Franklin. The following members were elected to take office when the meetings are resumed, Sept. 25: president, Wm. J. Leonard, t.m., Lifschultz Fast Freight; vice president, E. Bruce Ritchey, a.t.m., Lukens Steel Co.; secretary, Charles J. Hallen, f.f.r., Baltimore & Ohio Railroad Co.; treasurer, Edward J. Bolton, a.t.m., Luria Bros. & Co., Inc.; directors, N. Robert Elliott, c.a., Pyramid Motor Freight Corp.; J. A. Tucker, genl. frt. agent, Lone Star Package Car Co.; Millard V. Petticoat,

foreign frt. agt., New York Central System; Wm. M. Potts, div. frt. agt., Reading Co.

Harry Mould, supervisor, shipping department, Westinghouse Electric, has been elected president, Traffic and Transportation Assn. (Leffingwell)

Charles Francis McBride has been named general traffic manager, Pittsburgh Steel Co. (Leffingwell)

Norman Heck has been named traffic manager, Jones & Laughlin Steel Corp., succeeding Frank R. Boylan. (Leffingwell)

## OBITUARY

Warren T. Justice, 61, president of the Pennsylvania Warehousing & Safe Deposit Co., Philadelphia, and a director of the American Warehousemen's Assn. and American Chain of Warehouses. Mr. Justice also was first vice president of the Philadelphia Piers, Inc., and president Girard Warehouse Corp. and the Pennsylvania Warehouse Corp. He was a director of the Home Life Insurance Co. and the Philadelphia Beltline Railroad Co., and was a member of the New York and Philadelphia Traffic Clubs.

Charles E. Dant, 67, a leader in shipping and lumber circles. He was president of Dant & Russell and of the States Steamship Co., the former includes the Coos Bay Lumber Co. (Haskell)

Alvin R. MacGregor, 55, who operated the MacGregor Transfer & Storage Co., Denver. (Alexander)

John R. Gray, 74, general manager of all west coast operations of the Diamond Match Co. He entered employ of the Diamond Match

Co. in 1906 and was superintendent of Butte County Railroad. He was traffic manager for the company at New York during World War I. (Haskell)

Eddie Wilton Carter, 70, for more than 25 years warehouse superintendent for the B. V. Wilson Paper Co., Richmond, Va. (Tolson)

Lizzie B. Miller, 79, who with her husband Joseph, operated one of Chicago's largest warehouse and moving companies, until they retired 20 years ago. (Slawson)

Charles E. Bailey, executive secretary and general manager of the Portland (Ore.) Dock Commission, after a quarter century of Portland shipping service. He had been made manager of the dock commission in 1902 after 23 years service, succeeding then the late Philip H. Carroll. In 1942 he was named as executive secretary and general manager, while holding such additional posts as secretary of the Pacific Coast Assn. of Port Authorities and president of the Northwest Marine Terminals Assn. (Littelljohn)

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to Increase Profits by Reducing Costs**

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Elwell-Parker has answered that question, *with proof*, for Executives in more than 300 branches of peacetime industry. The proof is supplied through Industrial Logistics—a phrase coined by Elwell-Parker to describe the science of eliminating waste motions throughout the handling of materials, in Master Unit Loads.



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"Industrial Logistics" is a new term, but the economy-principles it incorporates are long-established—applied through the daily operation of thousands of Elwell-Parker Industrial Trucks and Cranes.

Industrial Logistics challenges Management to maintain the maximum flow of peacetime products through every stage of manufacturing, warehousing and distribution to the greatest number of customers, by means of a thoroughly-coordinated Plan. Thus Industrial Logistics is closely related to the placement of returning servicemen; the creation of more jobs; the control of costs and the broadening of markets.

To demonstrate the worth of Industrial Logistics in your business, Elwell-Parker will send an experienced Regional Field Engineer to help you to ferret out wastes in your present load-handling operations—and to show how they can be corrected with Elwell-Parker Truck and Crane Systems, properly installed. Executive inquiries are invited.

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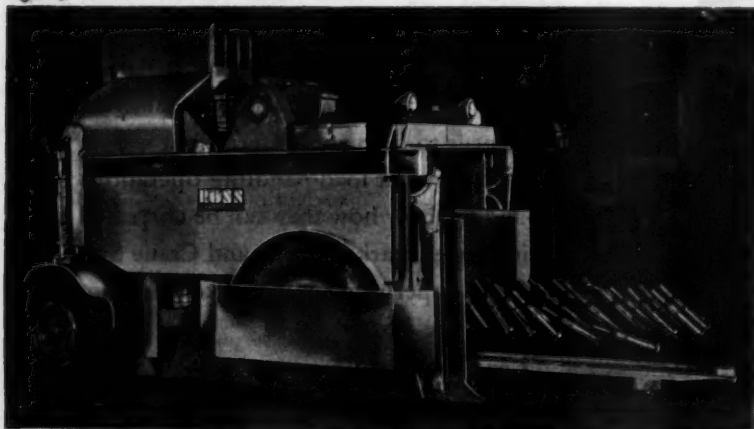
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Direct Factory Branches and Distributors Throughout The United States and Canada



## Cost Factors . . . (Continued from page 67)

Management, and all of us, ought to realize that costs of transportation will have to be brought down if the cost of over-all distribution is to be lowered in the postwar period. And it must be reduced.

There is plenty of evidence that cost of transportation, which makes up a large share of the cost of over-all distribution, is worthy of study by management.

### Comparative Costs

For instance, the U. S. Department of Commerce listed the percentage relation of total transportation expenses to total expense of a number of companies. In the list it is found that in chemical manufacturing the cost of transportation was 16 per cent of the total expense; in the manufacture of confections it was 14 per cent; in the manufacture of lumber it was 38 per cent; in canning and preserving processing it was 13 per cent. This is only a partial list, but it indicates that transportation creates costs which should be considered by management.

Since transportation increases the selling price, a manufacturer might well be restricting his market, by selling to a limited number at a price too high for most potential customers. A study of his transportation costs (broken down as herein mentioned) might show him where he could make savings in movement, and by thus reducing movement cost he could offer his commodity at a lower price and thereby reach a larger market.

## Rate Decision . . .

(Continued from page 62)

eliminate such violations so far as is now practicable.

### Significant Dissent

Commissioner Porter's dissent to the majority opinion is significant. He said in part:

"I have no difficulty in agreeing that the evidence does warrant a finding of unreasonableness of the intraterritorial rates within the South and West, as well as of the interterritorial rates between the respective territories and that they should be substantially reduced. In order to bring together the class-rate structures still more closely than would result under such a finding of unreasonableness, I favor affording the eastern carriers the opportunity to make some increases in their class rates, but not by as much as 15 per cent or even by 10 per cent. To increase the eastern rates, especially on carload traffic, by either of the latter percentages will carry a heavy and unwarranted burden upon the official territory shippers of class-rate traffic. On a large pro-

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Examine your trucks and replace all around with high-rated Faultless Casters. The kind with easy swiveling, uninterrupted raceways; oversize kingpins; extra heavy full-drawn horns; and many other constructional features developed during a half century of specialized experience.

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WHEEL**

Style	Dia. of Wheel	Lbs. Cap. Each
206-3	5"	400
206-6	6"	750

No. 206-6 with Semi-Steel Wheel



**100 SERIES SWIVEL CASTER  
PLAIN BEARING WHEEL**

Style No.	Kind of Wheel	Dia. of Wheel	Lbs. Cap. Each
100-3	Semi-Steel	3"	200
100-4	Semi-Steel	4"	300
101-3	Rubberex	3"	100
101-4	Rubberex	4"	150
101-5	Rubberex	5"	200
101-6	Rubberex	6"	275

No. 108-4TG with Thread Guard

(Far Right)  
**500 SERIES RIGID CASTER  
ROLLER BEARING WHEEL**

Style No.	Kind of Wheel	Dia. of Wheel	Lbs. Cap. Each
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Ease!*

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A DIVISION OF LINK-BELT COMPANY

portion of the traffic which formerly moved, and normally should move, on class rates in official territory, exception or commodity rates have been established which are generally much below the class basis.

"The effect of what the majority require here, therefore, is to heap a further burden on those shippers, generally the small shippers, whose rates have never been reduced below the class basis, thus widening the advantage already enjoyed by those, mostly the large shippers, whose rates have been accorded special treatment.

"It may be confidently expected if the class rates are increased by 10 per cent, . . . either that much of the present class-rate traffic in official territory will be accorded exception or commodity rates on about the same level as the existing class rates, in which event the uniformity here aimed at will be largely destroyed, or that there will fall into the lap of

this Commission a swarm of meritorious complaints against the resulting wholesale violations of the discrimination provisions of the Act."

We have included these excerpts from Commissioner Porter's dissent because he clearly points to the terrific impact on the freight rate situation, as it applies to the eastern section of the nation, as a result of the Commission's decision.

Appended to this article is a very brief table comparing prescribed (new) first class rates with present first class rates effective in Eastern (Official) and Southern areas. It is to be noted that the rates are based on miles. The table is headed "Excerpts From Appendix 10."

In a subsequent article we shall undertake, among other things, to describe the relationship between the present rates and the new rates, and how uniformity will affect the rates within the various territories.

**Traffic Management**

(Continued from page 63)

plight and, beginning in 1906, he began to acquire and use a skill and knowledge of regulatory law. In this manner he gained much prestige from 1906 to 1920.

The Transportation Act of 1920, amending the original Act to Regulate Commerce, introduced a public attitude that had been lacking during the previous 50 years. Instead of acting primarily as the protector of shippers, the government became equally concerned with the general welfare of the carriers. The position of the government, logically, should be neutral. To provide the nation with an adequate railroad system, it was necessary to set up rates that were reasonable both to buyer and seller. The plan required a fair and adequate rate of return to the carriers, as well as just and reasonable rates to meet the necessities of commerce.

**Act of 1920**

The Transportation Act of 1920 contained the following important features:

1. Changed the name of the statute to Interstate Commerce Act.
2. Terminated government operation of railroads in effect since the first World War.

**New Oregon Cotton Plant**

Expansion of Oregon Flax Textiles, Inc., a subsidiary of California Cotton Mills, Oakland, Ore., is reported by Wallace Bonesteel, who will shortly begin construction of a plant in Salem, Ore.

The one-story building, for which priorities have been granted, will cost approximately \$40,000. (Haskell)

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8 of them are over 22 years old  
12 of them are over 21 years old  
12 of them are over 13 years old

The average age of these trucks is 19.7 years.

The average cost of repair parts for the last seven years  
—after these trucks had already been in service for an  
average of over 12 years—is only \$39.99 per truck.

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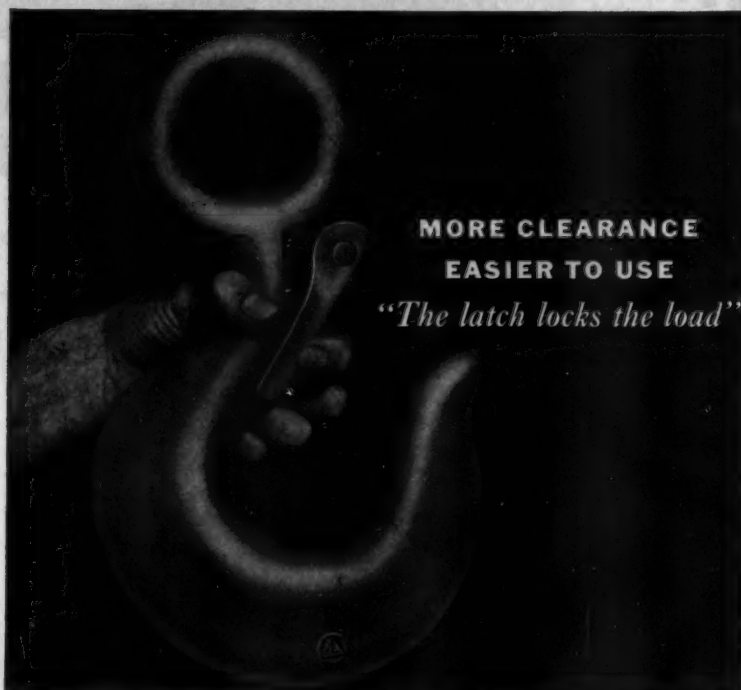
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3. Enlarged commission membership from nine to eleven.
4. Gave the commission power to:
  - (a) Fix minimum rates.
  - (b) Make loans to carriers.
  - (c) Fix first six-month guarantee to carriers.
  - (d) Require facilities afforded to carriers.
  - (e) Permit extensions and abandonments.
  - (f) Permit joint use of terminals.
  - (g) Initiate rates that yield a fair return.
  - (h) Control the issue of securities.
  - (i) Permit the pooling of service and traffic.
  - (j) Authorize acquisition of control of carriers.
  - (k) Outline a plan for consolidating lines and to authorize it.
  - (l) Require installation of train-control services.
  - (m) Recapture excess earnings of carriers.

With the passage of the Transportation Act of 1920, the traffic manager was put on a truly professional plane and from then on his ability to advance depended upon his knowledge of and skill in interpreting the regulatory laws even more than it had in the past.

### Crisis of 1929

Many important changes in industry and transportation took place following the business crisis of 1929, adversely affecting virtually all producers, distributors, and consumers of goods and services. Loss of actual purchasing power and fear as to future earnings and of the stability of capital and income caused the curtailment of consumption, which affected retailers, wholesalers, jobbers, agents, and other middlemen, manufacturers and processors, and finally, the producers of raw materials and supplies in a vicious descending spiral, "a kind of economic water-spout, destroying everything in its path." As consumption declined, the demand for goods and services receded, the need for workers' services fell off, unemployment increased, business concerns and industries were forced to close and taxes mounted, with increasing devastating force.

Industries in the path of this economic debacle were forced to adjust their policies and practices to meet changed economic conditions. Executives examined every department, and sometimes every individual, in order to be sure that they were productive and not likely to endanger the ability of the industry to survive. Traffic management withstood this trial in these years of economic crisis, which swept away all superfluities.

Traffic management, as this brief history of transportation legislation shows, is slowly but surely making progress in scope and effectiveness. Gradually the field has expanded from the supervision of industrial shipping, the bargaining with carriers for transportation service and charges, and the collection of claims against carriers, into the broader and more significant task of expert distribution.



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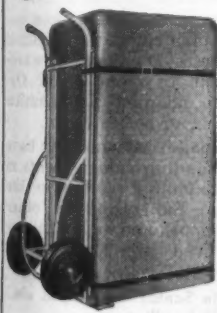
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Specify and insist on General Industrial Pneumatic Tire-Tube-Wheel Units on all new equipment you buy . . . the pioneer, proved Top-Quality, wide-base-rim tire combination that:

- (1) Rolls easier, faster over rough, smooth or soft surfaces;
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### South American Way

(Continued from page 56)

world's largest consumer of coffee, our methods of handling, transportation and warehousing show few innovations.

Coffee ships are unloaded in New York by means of rope slings and winches. The bags are deposited on platform lift trucks on the pier. If the coffee is for use in the New York

area, it is trucked directly to warehouses, where it is stored until delivery is made by motor truck to a nearby coffee roasting establishment.

If the coffee is destined for use in the interior part of the nation, it is transferred by sling and winch from the hold of the ship to a lighter, which transports it to a rail terminal. At the terminal, the coffee is loaded into freight cars for delivery to inland cities.

In Houston, some modernization of

coffee handling methods has been accomplished. Coffee bags are palletized to facilitate bulk handling in warehouses adjacent to piers. New Orleans has also adopted palletization for the handling of coffee cargo.

Aside from palletization, there have been few outstanding achievements in the field of handling coffee in the United States. Santos, on the other hand, has developed and makes full use of many improved techniques.

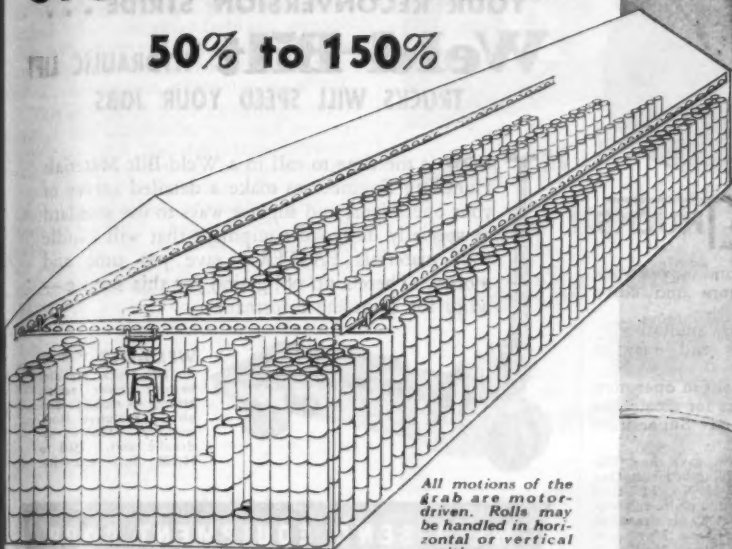
The Brazilian coffee port of Santos is one of the world's most modern and efficient shipping centers.

A typical underground coffee warehouse in Santos is equipped with its own railroad for speed in handling.



## INCREASE ROLL STORAGE CAPACITY

50% to 150%



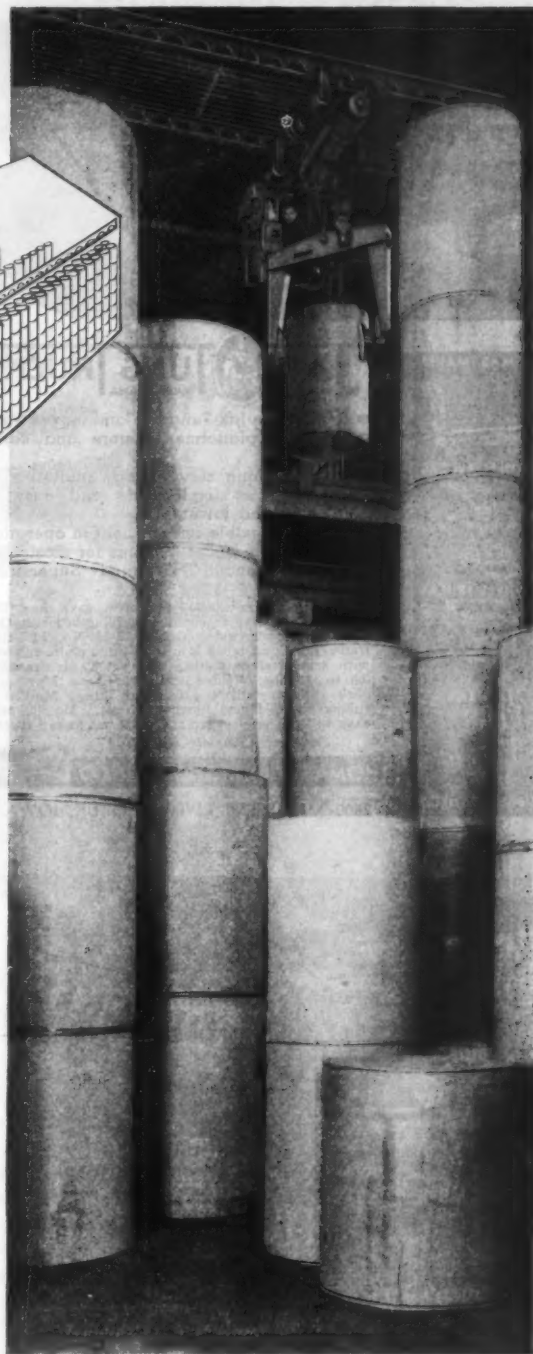
All motions of the grab are motor-driven. Rolls may be handled in horizontal or vertical position.

From 50% to 150% more rolls can be stored in a building that is of sufficient height to accommodate a Cleveland Tramrail overhead crane and motor-driven roll grab, because:

1. The entire floor area is utilized.
2. No aisle space for floor handling equipment is required.
3. Rolls are piled vertically 6 or 7 high (42 feet or more).

Rooms with many thousands of rolls can usually be served efficiently with only one man who handles all operations from the crane cab. Even where there are 50 or 100 different paper classifications, any type roll may be quickly stored or retrieved.

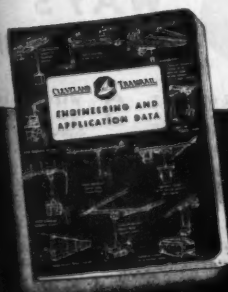
Reduction in paper spoilage is another of the many advantages of the Cleveland Tramrail method. In some plants this means a savings of 1% of all paper handled.



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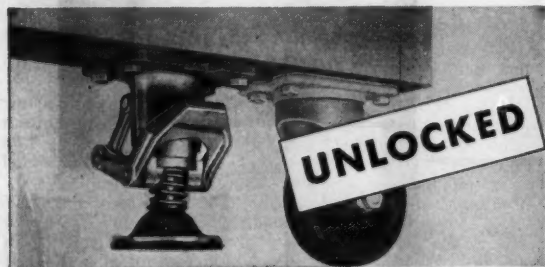
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## Coordination of Handling Operations

(Continued from page 45)

or warehouse is not properly coordinated with output. Delayed production or sub-standard production, often traceable to badly coordinated handling, depreciate customer good-will.

The effects of poor handling coordination are far-reaching, much more is involved than the difference between the cost of hand labor and a powered truck in moving loads. To set up exact production schedules and be reasonably sure that the rate will be maintained necessitates a knowledge of precise unloading and loading possibilities and accurate timing of handling to and from production, all movement coordinated like the works in a watch. The effective use of materials handling equipment is largely a matter of timing and you can't keep good time unless the works are properly synchronized.

### Packaging Factor

The package is a factor in coordination and the kinds are legion, from compact, heavy single units to bulky, light loads of many bags, bales or cartons. Obviously, equipment, methods and operation must be coordinated to the package or the unit load and vice versa. We haven't the space to detail the many refinements made in packaging, nor is this necessary, because our purpose is to stress the need for better coordination in handling. Equipment, containers, unit loads, pallets and other handling features can be coordinated only after a detailed study of existing operations plus the aid of materials handling engineers to synchronize and balance the new set-up properly.

Postwar plans are under way. Is coordinated handling on your postwar agenda? If not, your postwar plans may miss the jackpot. Is expansion on your postwar program? If you consider postwar expansion and omit coordinated handling, you may miss the bus. You may not need additional floor space at all if you coordinate handling properly and can forego this investment and the additional carrying charges it entails. In many cases, better coordination has found enough additional space in production and storage to eliminate the need for more space and even more machinery.

In other words, handling is more than an operational device. It is a profit-building factor if properly coordinated, a fact that receives too scant consideration because operational savings are given too much spotlight. Bigger volume, lower costs, a higher return on capital investment, lower depreciation expense, fewer rejects, less spoilage and damage, lower demurrage charges, better satisfied customers, more working capital, reducing the requirements for outside loads, less capital tied up in inventory, storage facilities, plant space and machinery, all these things and more, are benefits resulting from handling coordination.

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POST-WAR competition is going to call on you for greater efficiency and lowest possible costs. That means the speed and economy of machine power, which hundreds of Roustabout Crane users in many industries have found in this handy powerful load-handler. Ready for instant use where needed, it moves, loads, stacks heavy stuff to 7½ tons all around your plant, prevents costly delays or shifting men to meet emergencies. Easy to operate, built for years of overwork — ball-bearing boom turntable, all gears in oil. Get the facts now on this fast-action mobile wheel or crawler crane.

Roustabout saves you time and money on these and many other jobs

- Big stuff off and on trucks, freight cars
- Moving large machines
- Handling bales, boxes, drums
- Moving big castings, motors, railroad and marine gear
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## Non-Scheduled Air Cargo

(Continued from page 48)

found in this type. And it is the class of cargo that hitherto has moved mainly via railway express, and the l.c.l. and l.t.l. services of the railroads and the general freight motor carrier of property.

2. Specialized equipment. It is unlikely that the high degree of specialization of services and equipment found in the special commodity groups in motor trucking will be duplicated in the air for years to come. Most of the traffic hauled by such special commodity haulers on the ground requires special types of equipment, and special services in addition to transportation; much of it is short-haul and very low valued freight. All of it moves from store-door to store-door, thus avoiding the expensive transfer costs that airlines must incur.

3. Regularity of schedules. The cargo most likely to move by air probably will consist of small individual consignments rather than large offerings by a single shipper at one time and place for some time to come. In order to secure effective utilization of plane cargo space, the patronage of numerous shippers must be sought; and this tends strongly toward common carrier rather than contract carrying services. The motor freight field shows that general freight has gravitated strongly toward the common carrier. Moreover, air cargo of the type just mentioned will require a service, not only fast, but also regular, frequent and dependable. Speed alone is not enough.

The successful development of air cargo requires changes in market practices, such as sales by sample and dependence upon re-orders as contrasted with maintenance of larger stocks. Such changes in marketing can only be brought about and exist upon the basis of dependable schedules of services always available. Such service attributes are possible of realization mainly through regular route operations and daily frequencies. In the highway field it has been shown time and time again that general merchandise is chiefly hauled by regular route carriers. That tendency will probably be as strong in air transportation of that type of cargo as it has been on the ground.

4. Type of Cargo. It appears that a very large part of the air cargo of the next few years, until rates are very much reduced, will be what has always been known as "general freight." The special commodities of lower value seem to offer little chance for the airlines at present. This seems to indicate that the prospects for very large contract carrier developments in air transportation are less promising than they have been in the highway field. However, very large possibilities do exist for the future. Even quite soon some valuable perishable agricultural specialties, and highly perishable animal products will doubtless be carried under contracts; and



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some traffic in the publication field may also be developed.

Notwithstanding the fact that this review of the four factors governing the use of air cargo transportation in the near future seems to work against a very rapid development of non-scheduled or contract air cargo transportation, it must be borne in mind that most of the air cargo developed by any carrier will be new business. Never in the history of transportation has it failed to happen that a new agency has developed its own business: business that did not exist before.

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**Paint Spray Hose**, 2-p folder on paint spray hose designed for spraying of lacquers and synthetic enamels. Details of construction are outlined, together with data on sizes, braid type, weight per 100 ft. outside diameters and working pressures. Public Relations Department, B. F. Goodrich Co., Akron, O.

**Interstate Commerce Law**, 49-p. Selected cases and questions for study. The Associated Traffic Clubs of America, c/o R. A. Ellison, Mgr. Trans. Dept., Chamber of Commerce, 1203 C of C Bldg., Cincinnati 2, O.

**Lonn**, 22-p, illustrated; color. Information on Lonn rubber blow and spray guns and water savers used in practically every industry. B. F. Goodrich Co., Akron, O.

**Fairbanks-Morse**, Two new bulletins, one dealing with Fairbanks-Morse Figure 6920 Oil Lubricated Turbine Pump and known as Publication AQB400.1; and the other with low-lift, large capacity line of pumps known as Fairbanks-Morse Niagara Propeller Pumps and designated as AOB500.1. Fairbanks, Morse & Co., Advertising Dept., Pomona, Calif.

**Electrical and Mechanical Equipment Catalog**, 226-p of product listings, specifications, installation drawings, tabulated charts, load and performance curves and other data on design problems for engineers. Requests by engineers or product designers for copies of the catalog will be answered if made on firm letterhead and addressed to Lear, Inc., Dept. 81, Piqua, O.

**Industrial Safety Equipment**, 22-p, illustrations; text on industrial safety equipment. Stewart R. Browne Mfg. Co., Inc., 268 Broadway, New York 7, N. Y.

**Justice in Transportation**, 171-p. "An Exposure of Monopoly Control," by Arne C. Wiprud. New York, Chicago; Ziff-Davis Publishing Co. \$2.50.

**Open End V-Belting**, New catalog replete for successful application of Open End V-Belting, including method to determine length allowances for fastener length and tension. B. F. Goodrich Co., Akron, O.

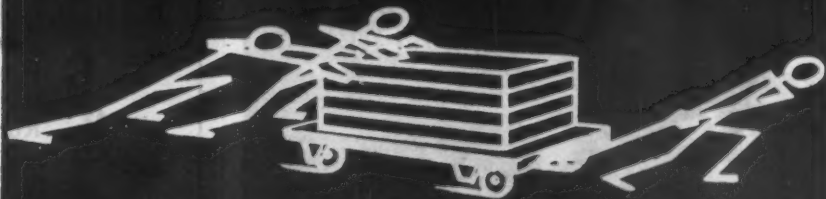
**The Story of Music-At-Work**, Designed for the "busy executive" who desires to gain an understanding of the complete history of music in plants and factories. 13-p, with pictures and text studying the success of music-at-work. Executone, Inc., 415 Lexington Ave., New York 17, N. Y.

**Knitted Wire**, Circular in blue, black and white noting some uses of knitted wire and stating strengths and sizes. E. H. Tichenor & Co., Walnut St. at Erie R. R., Binghamton, N. Y.

**The Pacific Plan**, 30-p book with numerous pictures, charts, etc., concerning expanded markets of the industrial west. Address D. C. Hammond, president, Pacific Fabricating Co., 3383 E. Gage Ave., Huntington Park, Cal.

**Storage Battery Manual**, "Most complete summary ever compiled of practical information on all the various industrial applications of storage batteries." William H. Maxwell, Philco Corp., Storage Battery Division, 60 Calhoun St., Trenton, N. J.

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## Postwar Aspects of the Helicopter

(Continued from page 51)

dustrial jobs already planned for fixed wing airplanes, and in many cases the helicopter will do them better. Certain types of photography, particularly low-level shots of single buildings, and other relatively small areas such as stagnant pools, small fields surrounded by high obstructions, and other pocket-like areas, fall automatically into the performance ability of the helicopter.

Rescue work, which is now one of the duties of the helicopter pilots in the Coast Guard, will continue to be important in peace time. Relief of stricken areas in times of the inevitable floods, fires, and other disasters, will be work for the flying windmills. It is not difficult to imagine many instances when helicopter delivery of a doctor and medical supplies will mean the saving of a life, or many lives, as has already been the case several times.

## Uses of Helicopters

Aerial inspection of power lines and oil lines is a new field of flying which is already being performed in a small

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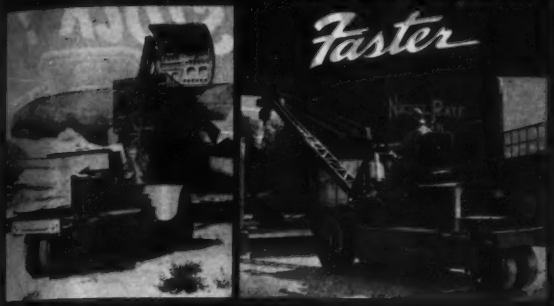
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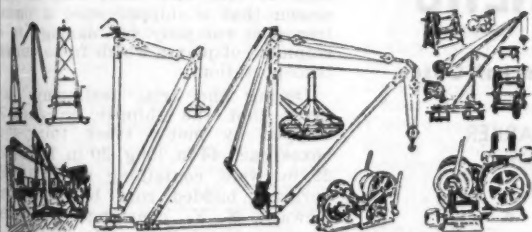
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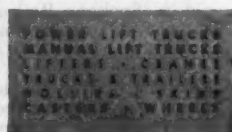
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## Transportation ...

### Carrier Has Burden

A modern court has held that the burden is upon a carrier to prove that a shipment carries a different freight rate than claimed and paid by a shipper.

For illustration, in *Sonken-Galamba Corp. v. Union Pacific Railroad Co.*, 145 Pac. (2d) 808, it was shown that the freight rates on steel plates are higher than on scrap iron. A company consigned four carloads of used tank bottom plates. They were "thrown loosely in an open car" without any blocking or dunnage, and were billed as "scrap iron." The carrier sued to recover the difference between 17c. per 100 lb., which had been charged and collected, and the higher freight rate applicable to steel plates, 44c. per 100 lb. on the four carloads of metal. The higher court refused to hold in favor of the carrier, saying:

"It is necessarily the predominate use or value which should determine the character of the shipment, and not the isolated and sporadic use to which it may sometimes be put after it has been shipped to its intended destination."

On the other hand, see *Alaska Junk Co. v. Spokane Railroad Co.*, 98 I. C. C. 551, where shipments of unused steel ship rivets and nuts, and washers, which remained on hand at the shipyards after the building of steel ships was discontinued, were held not to carry the scrap iron rate although

## LEGAL NEWS

### Comments on Recent Cases

By LEO T. PARKER  
Legal Editor

thus billed. The metal was sold at scrap iron prices to be remelted only, but it was admitted that if there had been a market for the rivets, they would have been sold as such instead of scrap.

Also, see *Magone*, 159 U. S. 417. This court held that tariff rates cannot be applied retrospectively, neither can the character of the material be made to depend upon an independent investigation concerning its use.

### Tariffs Bind Shipper

Both consignor and consignee are bound by provisions of tariffs. If freight tariffs, for example, provide for transportation in unheated trucks a shipper cannot recover damages resulting from freezing of perishable merchandise, although the shipment crates contain definite markings which warn the carrier against submitting the shipment to low temperatures.

For example, in *Jackson and Perkins Co. v. Mushroom Transp. Co. Inc.*, 41 Atl. (2d) 635, Pa., it was shown that a shipper sued a motor transport company for damage to a shipment of plants which froze during transportation.

During the trial testimony was given that the shipper on Jan. 5 shipped by motor truck thirty-two boxes, each 44 in. long, 20 in. high and 22 in. wide, containing about 16,000 dormant budded rose bushes, from Newark, N. Y., consigned to Flora Gardens, North Wales, Pa. The initial carrier issued a bill of lading or shipping receipt in the usual form. The plants were frozen and of no value when delivered to the consignee. The shipper contended that the carrier was liable because shipment was "in a class known as 'perishable'" and that the boxes containing the plants bore instructions that the contents were perishable, easily frozen, and must be kept from extreme heat or cold.

On the other hand, the carrier proved that it had filed tariffs stating their services, rates and regulations. The freight tariffs provided for transportation in unheated trucks and contained no provision that shipments at rest in their terminals would be protected by artificial heat. In view of this provision the higher court refused to hold the carrier liable, saying:

"The consignor and the consignee were bound by the tariffs. . . . These tariffs bound all parties involved in the transaction and have the force and effect of



an Act of Congress. . . . The evidence supports the conclusion that the damage resulted from the shipment of property liable to freeze during the low temperatures in unheated transportation facilities and that defendants (carriers) performed their contract of carriage without negligence."

## Packaging . . .

### Fair Labor Standards

Modern courts hold that although a container manufacturer sells his products exclusively to purchasers within the state this fact does not exempt him from the Fair Labor Standards Act, providing purchasers use the containers to ship merchandise in interstate commerce.

See *Dize v. Maddrix*, 144 Fed. (2d) 884, where suit was filed by employees against a container corporation to recover unpaid overtime compensation, liquidated damages and a reasonable attorney's fee under the Fair Labor Standards Act.

Although it was proved that this corporation did not sell any containers to purchasers located outside the state, yet since the containers were used by the purchasers to pack and ship merchandise into other states, the higher court held the container corporation within the scope of the Federal Wage Law and said:

"True it is that the boxes made by Dize were sold locally to packers and shippers, but a great majority of the boxes made and sold by him were used by these packers and shippers for shipments in interstate commerce."

### Products Not Misabeled

The Food, Drug, and Cosmetic Act makes it unlawful to mislabel certain designated products. A late higher court has held that this law does not apply to products other than food and similar products.

For illustration, in *United States v. Willard*, 141 Fed. (2d) 141, a suit was filed by the United States against a company for condemnation of a quantity of mislabeled paper and cartons shipped in interstate commerce on the ground that the labeling was false. The suit was based upon a violation of the Food, Drug, and Cosmetic Act.

The higher court held that products of this nature are not subject to this Act.

### Warehousing . . .

#### Warehouse Condemned

In all condemnation proceedings the owner of the property appropriated for public purposes is entitled to recover compensation based upon actual losses sustained.

In *United States v. 6.87 Acres of Land in Village of Garden City, Nassau County, N. Y.*, 147 Fed. (2d) 351, the United States condemned and appropriated certain real property, owned by a warehouse company, on which was situated a warehouse building. The lower court held that the warehouse company was entitled to

receive compensation as follows: land, \$29,111; improvements, \$296,389. Furthermore the warehouse company was awarded 6 per cent interest from date the government took possession of the building until the award was paid to the warehouse company.

The amount of the award was based upon the exact value of the property including the rentals, and sale value. The sale value was not determined by reference to the taxes, which were low. The higher court approved the verdict, and said: "It is sufficient if the court's ultimate figure of valuation is amply supported by the evidence, as it is here."

On the other hand, it must be remembered that in cases of this kind a warehouse owner cannot recover the present value of appropriated property, if the present value has been recently inflated by activities of the appropriator.

### Delivery of Seed

Generally speaking, where a sale contract fails to specify the exact date a purchaser will take delivery of purchased merchandise, the higher court will imply that the purchaser must accept delivery within a "reasonable" time, or not longer than four weeks from the date of the contract.

In *J. S. Brown v. Eugene Scallan*, 20 So. (2d) 732, La., it was shown that a seller sold 800 bu. of soy beans at a price of \$2.05 per bu., or \$1,640. These beans were in a warehouse. Because of the buyer's unreasonable delay of six months in removing the soy beans from the warehouse, the seller was required to resack 400 of the sacks of the beans eaten by rats. The seller sued the purchaser to recover this resacking expense, plus the cost of the bags.

In holding the purchaser liable, the higher court said that purchasers must remove purchased merchandise from a warehouse, or accept delivery, within a "reasonable" period of time. Failure to do so results in the purchaser being liable to the seller for resultant financial loss.

### Marketing . . .

#### Imported Goods

It is well known that a state cannot legally tax imported merchandise stored in a warehouse in original packages. Recently, however, the Supreme Court of the United States enlarged this usual law by holding that "imports" are goods received from anywhere outside the United States.

In *Hoonen*, 89 Supreme Court Law, ed, 852, it was shown that a manufacturer employed a broker to purchase goods in the Philippine Islands. The manufacturer's purchase price included the cost of the goods at the point of origin, freight, insurance, customs clearance and duties, broker's commission, and other incidental expenses. Moreover, this merchandise was consigned to the broker with directions to notify the manufacturer.

The Supreme Court held that this

manufacturer is an "importer" and that a state has no legal right to tax the goods which were placed in a warehouse for storage.

This court also verified the usual law: the instant the goods are "manufactured" or the original packages are broken the state may tax such merchandise. Moreover, the fact that the goods were shipped from the Philippine Islands did not result in the goods losing character as "imports." Thus, all goods brought from outside the United States are "imports." The court said:

"It is obvious that if the states were left free to tax things imported after they are introduced into the country, and before they are devoted to the use for which they are imported, the purpose of the constitutional provision (against state taxation on imports) would be defeated."

### Insurance and Finance . . .

#### Partnership Assets

The assets of a partnership may include not only material values, but also all incidental moneys.

For example, in *Block v. Mylish*, 41 Atl. (2d) 731, Pa., it was shown that two partners carried insurance policies to protect their partnership business. One of the partners died, and the higher court held that the assets of the business totaled the value of the merchandise on hand, good will, insurance payable on the policy held by the deceased partner, and the cash surrender value of the insurance policy held by the other living partner.

#### Policy Void

When insurance policies are not protective against losses, believed to be covered in the policies, the insured may continue to pay insurance premiums many years without knowing that the policy does not afford protection. Therefore, all persons should take time to read insurance policies and not rely upon promises made by an insurance agent.

For illustration, in *State Corp. v. Travelers*, 30 S. E. (2d) 377, the holder of an insurance policy requested his insurance agent to include in the policy robbery insurance for \$1,000 on the outside, and \$1,300 on the inside, and also burglary insurance. The insurance agent notified the insured by letter that the policy had been changed to this coverage. However, the company did not change the policy to include the additional desired coverage.

A loss resulted from burglary and the insurance company refused payment. In a subsequent suit the higher court refused to hold the insurance company liable and stated that when an applicant for insurance receives a policy which does not conform to the agent's representations, he must notify the insurance company of the variance. This court also held that retention of a policy by an insured who neither reads it nor objects is legal acceptance of the policy, and the protection limited by the clauses in the policy is valid.

# Cold Storage...



## National Refrigerated Warehouse Assn. Elects G. Dudley Allman to Presidency

G. Dudley Allman, Chicago cold storage executive, was elected president of the National Assn. of Refrigerated Warehouses, a division of the American Warehousemen's Assn., at a recent meeting of the executive committee at the Edgewater Beach Hotel, Chicago. Mr. Allman succeeds the late Frank O'Hara.

The new president has been in the refrigerated warehouse field for 47 years. He started with the Union Cold Storage Co. in 1898. After an association with the Chicago Cold Storage & Warehouse Co., he joined the United States Cold Storage Corp., Chicago, as general superintendent. He progressed through the positions of general manager, vice-president, and executive vice-president to the presidency of that corporation, which he holds at present.

Mr. Allman has served the Association in the past as executive secretary and as vice-president.

Harlan J. Nissen, vice-president and general manager, Terminal Refrigerating Co., Los Angeles, was elected vice-president of the Association. Horace W. Wilson, Quaker Cold Storage Co., Philadelphia, was elected to the executive committee. Both Mr. Nissen and Mr. Wilson have been active in the Association for many years.

In addition to electing officers, the executive committee discussed plans to oppose the Railroad Retirement bills, and the recent report of a Congressional committee on food shortages.

Under the terms of the Railroad Retirement bills now before Congress, all warehouse employees would come under the jurisdiction of the Railroad Retirement Act. This, in the opinion of the Association, would greatly increase taxes both of employers and employees.

Plans were made for representatives of the cold storage industry to appear before the House committee investigating food shortages. This Congressional group recently stated that there is a critical shortage of refrigerated storage space, and recommended the construction of more warehouses. This statement, the industry believes, is not an accurate reflection of the situation.

William M. O'Keefe, executive secretary, told the executive committee that the War Food Administration had decided to make "A" awards available to public warehouses with outstanding records in support of the war effort.

### Refrigerated Storage Placed on Urgency List

In a recent conference with representatives of the WPB, Dr. A. G. Taylor and C. P. Austin, WFA officials, succeeded in having commercial food cold storage facilities, excluding food lockers, placed on the national production urgency list.

The significance of this action is that commercial refrigerated storage establishments now are entitled to high urgency labor ratings, which may be obtained upon application to the regional director or district manager of the WPB.

### Paraguay Constructs Cold Storage Units

Paraguay has begun to build refrigeration units to store food for domestic use, reported Abion Patterson in Washington, D. C., recently. Mr. Patterson is associate director of a special agency set up in the Paraguayan Ministry of Agriculture to co-operate with the U. S. in a food development program.

The refrigeration facilities are expected to aid substantially in ironing out seasonal fluctuation in food prices and in improving food supply for the Paraguayan market. The first plant is scheduled to be completed in Asuncion, the capital, within the next year. It will be used to store fruits, meat, and vegetables.

### United Truck Lines Adds Refrigerator Units

United Truck Lines, Inc., Portland, Ore., has recently obtained 30 new refrigerator truck-trailer units, announced H. L. Woodward of the traffic department. United is a pioneer in the use of aluminum in the construction of trucks and other road equipment. Use of the light metal has resulted in decreasing overall weight and substantially increasing carrying capacity.

An average of 146,000 lb. of frozen and refrigerated merchandise is handled daily by the company. (Haskell)

### New Dry Ice Plant Started in Ashland

Manufacturing of dry ice has been started at Ashland, Ore., under the direction of R. V. Newbern, operator of a large dry ice plant at Klickitat, Wash. The new plant is situated on the city's lithia springs property. Carbon dioxide used in manufacturing the ice is drawn from the springs.

It is hoped by dry ice manufacturers that adequate machinery will be developed to control the excessively low temperature created by their product, so that dry ice can be used in all types of refrigerated car shipments in the future. (Haskell.)

### Cold Storage Extends Tuna Packing Period

Erection of a 1000 ton capacity cold storage plant will be started soon near the fish fleet base, Hoquiam, Wash., announced Forest King, Greco Harbor Marine & Electric Co. The building will have 16,000 sq. ft. of floor space. Walls will be 18 in. thick.

The new facilities will make it possible to spread the packing of tuna over a longer period of time. W. T. Perry, Seattle, will manage the plant.

## Cork Board Construction, Metal Clad Doors Feature Newly Insulated Memphis Warehouse

One of the largest insulation projects in the mid-south area has been completed recently on a warehouse of the Tennessee Cold Storage Co., announced Chris Fiedler, the contractor, in Memphis.

The insulation, of cork board construction, is laid in three layers, each of which is three inches wide. All layers were set in hot asphalt. Joints were broken double.

The Tennessee Co. warehouse has freezer storage space of 16,000 sq. ft. Freezer doors are metal clad. All vestibules are equipped with metal clad flapper doors. Walls, floor, and roof are of nine inch, three layer overlapping cork board construction. A 10 in. tar and gravel covering was laid over the cork board on the roof.

Temperatures in the warehouse will be maintained at lower than 10 degrees below zero.

**PUBLIC WAREHOUSE SECTION**

**BIRMINGHAM, ALA.**

1880—Sixty-five Years of Service—1945

**HARRIS TRANSFER & WAREHOUSE CO.**

9 South 13th St., Birmingham 1

— FIREPROOF WAREHOUSES —

Merchandise and Household Goods

• STORAGE • CARTAGE • DISTRIBUTION • FORWARDING

Pool Cars Handled

Member of A.C.W.—A.W.A.—N.F.W.A. Agents for Allied Van Lines, Inc.

**BIRMINGHAM, ALA.**

**STRICKLAND TRANSFER & WAREHOUSE CO.**

1700-1702 2nd Ave. So., Birmingham 3

General Merchandise Storage and Distribution

Pool Car Service a Specialty—Motor Truck Service

Centrally Located—Free Switching from All R.R.s.

**BIRMINGHAM, ALA.**

**WITTICHEN**

Transfer & Warehouse Co.  
831 North 19th St., Birmingham 2

Fireproof Warehouse

Household Goods and Merchandise

Pool Car Distribution

Members: A.W.A. & M.W.A.

**MOBILE, ALA.**

**SECURITY BONDED WAREHOUSE**

500-501 East Commerce St.

POOL CAR DISTRIBUTION

REMOVING

AL. Alabama

GA. Georgia

FL. Florida

Receiving—STORAGE—Handling.  
Motor Freight Service to all points.  
6-car Private Siding. Reciprocal Switching.  
Efficient—Consistent Branch House Service.

**MOBILE, ALA.**

**Merchants Transfer Company**

9 So. Commerce Mobile 3

HEAVY HAULING—STORAGE

Pool Cars and General Merchandise—Bonded

Authorized Transfer Agents

A.T.&N., G.M.&N., L.&N., M.&O. &

Southern Railroads. Pan Atlantic S/S Corp.

**MONTGOMERY, ALA.**

**Alabama Transfer & Warehouse Co.**

P.O. Box 164, Montgomery 1

BONDED — FIREPROOF —

WAREHOUSE

STORAGE & DISTRIBUTION

Members: N.F.W.A. — A.W.A. — A.C.W. —

A.V.L.

**MONTGOMERY, ALA.**

**MOELLER TRANSFER & STORAGE CO.**

210-220 COOSA ST., MONTGOMERY 1

Merchandise and Household Goods

Low Insurance Rate Bonded Trucking Service

Pool Car Distribution

Members: A.W.A., N.F.W.A., So. W.A.

**LITTLE ROCK, ARK.**

**COMMERCIAL WAREHOUSE CO.**

801-7 East Markham Street

A Complete Branch House Service — Fire-

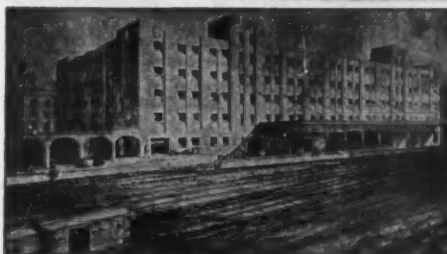
proof Sprinklered — Low Insurance —

Private Railroad Siding — Quick Service.

**ALABAMA—ARKANSAS—CALIFORNIA**

**LITTLE ROCK, ARK.**

Arkansas' Largest Warehouse  
Merchandise—Household Storage



Absolutely  
Fireproof  
Low  
Insurance  
Rates  
Pool Car  
Distribution  
Compartments  
for household  
Goods.

**TERMINAL WAREHOUSE CO.**

LITTLE ROCK ARKANSAS

Member American Warehousemen's Association

American Chain of Warehouses

Agent for Allied Van Lines, Inc.

**LOS ANGELES, CAL.**

OPERATING WAREHOUSES  
IN PRINCIPAL CALIFORNIA CITIES



**BEKINS**

VAN & STORAGE CO.

1335 S. FIGUEROA ST.

Lackie Waller, Manager

**LOS ANGELES, CAL.**

The



STORAGE  
DISTRIBUTION  
TRANSPORTATION

**CALIFORNIA**

1248 WHOLESALE ST.

Merchandise Exclusively

**WAREHOUSE**

LOS ANGELES 21

Sprinklered—A.D.T.

**LOS ANGELES, CAL.**

PROMPT REMITTANCES

**CROWN TRANSFER & STORAGE CO.**

1201 E. 5th St.

Los Angeles

45 So. Arroyo Parkway

Pasadena

SHIPPING TO AND FROM ALL EASTERN CITIES

POOL CAR DISTRIBUTION—L.C.L. SHIPMENTS

We specialize in transferring household goods for company personnel.

R. T. CHRISTMAS THREE DECADES OF SERVICE

**LOS ANGELES, CAL.**

AN "ASSOCIATED WAREHOUSE"

**DAVIES WAREHOUSE COMPANY**

GENERAL OFFICES: 164 SOUTH CENTRAL AVE., LOS ANGELES 15

First merchandise warehouses in Los Angeles—and STILL the

FIRST... Established 1893... MORE THAN ORDINARY

SERVICE... We invite inquiries relative to your ware-

house problems.

MEMBERS: A.W.A. SINCE 1898... C.W.A. ... L.A.W.A.

**LOS ANGELES, CAL.**

Completely Equipped

Merchandise

**LOS ANGELES WAREHOUSE CO.**

316 Commercial Street

Household Goods

**LOS ANGELES, CAL.**

SERVING THE PACIFIC COAST ★ THE MOST POPULAR MOVER IN THE WEST

Member

NFWA

& AWA

**LYON**

VAN & STORAGE CO.

General Office: 1950 So. Vermont Ave.

Frank A. Payne, Pres.

Henry M. Burgess, Vice Pres.





## CALIFORNIA

### LOS ANGELES 21, CAL.

#### METROPOLITAN WAREHOUSE COMPANY

Established 1924

Incorporated

W. H. Tyler  
General Manager

1340-86 E. Sixth St.  
(Tel. Triality 9861)

**FACILITIES**—270,000 sq. ft.: Fireproof, reinforced concrete const.; Sprinkler sys.; A. D. T. alarm service. Ins. rate, 11.7. Siding on A. T. & S. F. Ry.; capacity, 18 cars; free switching. Ample Motor Truck Platforms—Sheltered.

**SERVICE FEATURES**—Pool car distributors. Motor transport service available. Space for lease: Storage; Offices; Cooler Rooms.

**ASSOCIATIONS**—Calif. W. A.; Los Angeles W. A.

### LOS ANGELES, CAL.

#### Overland Terminal Warehouse

Served by 1807 East Olympic Blvd.  
Los Angeles 21



General Merchandise Storage

Sprinklered—A.D.T.

U. S. Customs Bonded Warehouse No. 11  
Cool Room Accommodations

For Complete Information Write Us Direct  
or Handle with Our Associates

**CROOKS TERMINAL WAREHOUSE, INC.**

CHICAGO 7 NEW YORK 16 KANSAS CITY 7  
453 W. Harrison St. 371 Madison Ave. 1104 Union Ave.

Or Nearest General Agency Union Pacific Railroad

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MEMBER OF A.W.A.

#### PACIFIC COAST TERMINAL WAREHOUSE COMPANY

1340 E. SIXTH ST. LOS ANGELES 21, CAL.  
MERCHANDISE STORAGE AND DISTRIBUTION  
Located in the heart of the Wholesale District

### LOS ANGELES, CAL.

Estab. 1918

#### PACIFIC COMMERCIAL WAREHOUSE



Now offering space for storage and distribution of civilian commodities. Advise your specific requirements and we will be glad to outline our complete services, rates, etc.

★ **Certificated public utility** ★

### LOS ANGELES, CAL.

1817-1833 INDUSTRIAL ST., LOS ANGELES 21

#### Star Truck & Warehouse Co.

COMPLETE FACILITIES EFFICIENT SERVICE  
STORAGE SPRINKLERED—A.D.T. DRAYAGE  
Represented by Distribution Service

340,000 Square Feet 117 Pieces Motor Equipment  
New York Chicago San Francisco

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#### UNION TERMINAL WAREHOUSE

General offices, 737 Terminal St., Los Angeles 21

Free and U. S. Customs bonded storage. The largest, most complete and efficient Warehouse and Distribution Service in the West. Insurance Rate as low as 10.3 cents per \$100 per year. Daily motor truck service to all parts of the city and Los Angeles Harbor.

### LOS ANGELES, CAL.

#### WESTLAND WAREHOUSES, INC.

Established 1923

G. G. Franklin  
General Manager

4814 Loma Vista Ave.  
Tel. Lafayette 1101

**FACILITIES**—352,355 sq. ft. Fireproof, rein. conc. Sprinkler Sys. Watchmen. Ins. 1¢ per mo. Siding: L.A. Junc. Ry., 48 cars. Free switch: A.T.&S.F., S.P., U.P. and P.E. Ample Motor Truck platforms.

**SPECIAL SERVICES**—Pool cars. Daily mot. transp. to S. Calif. points. Free pickup.

**ASSNS.**—A.W.A., C.W.A., L.A.W.A., M.T.A.S.C.

### OAKLAND, CAL.

SINCE 1900



**GENERAL MERCHANDISE**  
Warehousing—Distributing—Draying  
**HOWARD TERMINAL**  
95 Market Street, Oakland 4  
Warehouses Steamer Pier

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MEMBER



**LAWRENCE**  
Warehouse & Distributing Co.  
**STORAGE**

Merchandise — Household Goods  
Pool Car Distributing — Drayage  
Your Detail Handled as You Want It

20th & JAY STS., P.O. BX. 1194 SACRAMENTO 6

### SACRAMENTO, CAL.

ARTHUR E. TRAVIS, Owner

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Merchandise and Household Goods Warehouse

Specializing in General Merchandise, Hops and Flour. Private Siding on S.P.R.R.—10-Car Capacity. Distribution of Merchandise and Household Goods Pool Cars.

### SAN FRANCISCO, CALIF.

"Where the West begins and Distribution starts."



**GIBRALTAR WAREHOUSES**  
201 California St., San Francisco 11  
OPERATED IN CONJUNCTION WITH  
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AND  
**TILDEN SALES BUILDING**

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#### HASLETT WAREHOUSE COMPANY

240 Battery Street, San Francisco 11

Largest and most complete storage and trucking service on the Pacific Coast  
Operating in San Francisco, Oakland, Stockton and Sacramento

S. M. HASLETT — President  
Member: American Warehousemen's Assoc.  
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**SAN FRANCISCO, CAL.**

**MARKET STREET VAN & STORAGE**

TIM GRIFFIN, Pres. JIM CUMMING, Sec.-Treas.  
1875 Mission St., San Francisco 3  
**Efficient and Prompt Service**  
Operating 3 Warehouses; total space 90,000 sq. ft. Low  
Insurance Rates; Accessible to all Railroads; Sprinkler  
System, Vault Storage, Pool Cars Distributed.  
Members NFWA, Agent Allied Van Lines, Inc.



**SAN FRANCISCO, CAL.**

Member:  
American Warehousemen's Association  
Distribution Service, Inc.

**Complete  
Warehousing  
SERVICE**



General Merchandise  
United States Customs and  
Internal Revenue Bonded Storage.  
Draying and Pool Car Distribution.  
Office Accommodations and Telephone Service.

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**SAN FRANCISCO, CAL.**

MEMBER: Allied Distribution, Inc.

**SOUTH END WAREHOUSE COMPANY**

Free Storage—Custom Bonded—Internal Revenue Bonded  
Drayage Service

**King and Company**  
Draymen

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CHAS. C. WAGNER, Pres.

**PACIFIC STORAGE CO.**

517 N. Hunter St. Stockton, Cal.  
Merchandise—Household Goods—  
Drayage

Ship thru the PORT OF STOCKTON for economical  
distribution in Central California.  
Intercoastal Terminal Rates apply at Stockton.



**DENVER, COLO.**



**THE BANKERS WAREHOUSE COMPANY**

TELEPHONE MAIN 5239 • 2145 BLAKE STREET • DENVER, COLORADO

**MERCHANDISE STORAGE—POOL CAR DISTRIBUTION**  
A.S.T. Protection—Private siding C. B. & Q.—U.P. Also operates  
Warehouse at Brighton, Colo.

Represented By  
Associated Warehouses, Inc.—Chicago & New York City



**DENVER, COLO.**

Warehousing with our organization means rapid ser-  
vice with utmost economy  
Sprinklered thruout, Free switching  
Pool and stop over cars stored or distributed  
Centrally located

**KENNICOTT WAREHOUSES INC.**

1700—16 Street Denver 17, Colo.

**DENVER, COLO.**

**WEICKER Complete Service**

- ★Mdse. & Hhg. Goods Storage
- ★Pool Car Distribution
- ★Moving, Packing, Forwarding

We Operate a statewide, daily motor freight service under  
regulation of the Public Utilities Com. Connection with  
Interstate Truck Lines to Principal Cities.

SILVER VAULTS, CEDAR LINED RUG VAULT,  
FUMIGATING VAULT, PRIVATE LOCKERS



**THE WEICKER TRANSFER & STORAGE CO.**

1700 Fifteenth, Denver 17, Colo.

Member of N.F.W.A.—A.C.W.—A.W.A.—Dist. Serv., Inc.  
Agent, Allied Van Lines



The interpretation of the Class Rate Deci-  
sion by Elwell and Elkins in this issue is of  
major importance to all traffic men.

## Handling Flammable Fluids

Flammable solvents, such as gaso-  
line, naphtha, benzene, and acetone,  
cause fires and explosions that kill  
or injure hundreds of persons and de-  
stroy property worth millions of dol-  
lars in American business establish-  
ments every year. To ensure safety,  
therefore, adequate protection from  
these hazards must be provided  
whenever flammable solvents are em-  
ployed.

Even when used in small quantities,  
flammable solvents require careful  
handling. They should be kept in ap-  
proved safety cans and applied where  
there is no danger of ignition from  
flames, mechanical or electric sparks,  
or high temperature due to fire or  
friction. Smoking in the area of ap-  
plication should be prohibited.

Where large quantities of flam-  
mable solvents are used, further pro-

TECTIVE measures are necessary.

### To Prevent Explosions

To prevent disastrous explosions,  
the concentration of solvent vapor in  
the atmosphere must be kept below  
the lower explosive limit by using  
equipment that minimizes the escape  
of vapor into the air and by supply-  
ing a sufficient amount of fresh air  
by means of natural or mechanical  
ventilation. In practice, the vapor con-  
tent of the workroom air should be  
kept below the "maximum allowable  
concentration for continuous expo-  
sure," which is basic protection from  
both toxicity and explosion.

But good general ventilation does  
not eliminate the localized fire hazards  
created by volatile flammable solvents.  
Special precautions must be taken to  
prevent the ignition of spills, creep-

ing vapors, which may travel 100 ft.  
or more from the point of origin,  
vapors collected in low places, such  
as pits or basements, and the explo-  
sive vapor-air mixtures that remain in  
containers emptied of solvents.

In removing all possible sources of  
ignition from areas where flammable  
solvents are being handled, enclosed  
explosion-proof electrical equipment  
should be installed in accordance with  
the National Electrical Code; non-  
sparking bronze tools should be used;  
and workers should be provided with  
shoes made without nails.

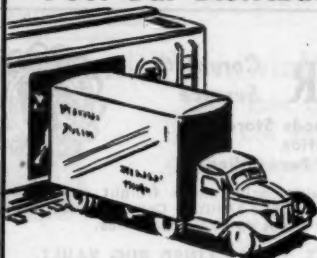
### Storing Solvents

Flammable solvents should be  
stored and handled in equipment in-  
stalled in accordance with the stand-  
ards of the National Fire Protection  
Assn.



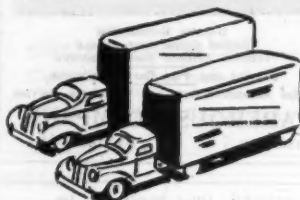
*The best "set-up" in  
the Rocky Mountain  
area...That's my opinion!*

### Pool Car Distribution Service



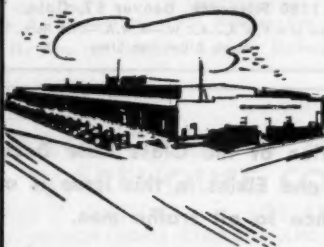
- 38 trucks for handling merchandise distribution
- Pick up and delivery service
- Storage in transit

### Near Truck and Rail Terminals



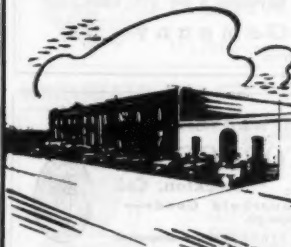
- Near all freight stations; truckage to all warehouses; adjacent to truck-line terminals; in the heart of whole-sale district.

### Modern Fireproof Warehouses



- Unlimited floor Loads
- Sprinklered and Insured
- Custom-Banded Storage
- 140,000 sq. ft. Storage Space
- 17 Car Sidings
- Free Switching

### Office Space—Special Services



- Large or small office space is available for brokers and national distributors
- Re-coopering, stenciling, re-labeling, inventories, collections.

## A HAPPY COMBINATION OF FACILITIES AND EXPERIENCE

Here you have storage space and equipment combined with 43 years of warehousing experience, under competent second generation management. Add to this a staff of trained employees with an on-the-job record averaging twelve years per employee and you can see why... "In Denver, NORTH DENVER TRANSFER AND STORAGE SERVES YOU BEST!"

EST. 1902  
**NORTH DENVER**  
*Transfer & Storage Co.*

Office: 2016 Blake St. DENVER, COLORADO

Wire, Write or Telephone

Represented by  
NEW YORK ALLIED DISTRIBUTION INC. CHICAGO  
11 WEST 42ND ST. NEW YORK 36, N.Y. 1925 NEWBERRY AVE. CHICAGO 11, ILL.



PUEBLO, COLO.

Member of May. W.A.—A.W.A.—Colo. W.A.

## BURCH WAREHOUSE AND TRANSFER CO., INC.

General Office and Warehouse  
200 SO. SANTA FE AVENUE  
Modern Sprinklered Fireproof Building—Freight Forwarding  
and Distribution—Household and Merchandise Storage  
PACKING AND SHIPPING

Represented by  
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CHICAGO  
1320 NEWBERRY AVE. MONSIEUR

NEW HAVEN, CONN.

M. E. KIELY, Pres.

## DAVIS STORAGE COMPANY

335 East St., New Haven 2, Conn.  
Modern Fireproof Merchandise Warehouse  
Private seven-car Siding, adjacent to Steamship and  
R. R. Terminals. Pool and stop over cars distributed.  
Merchandise Storage.  
Motor Truck Service to all towns in Connecticut.  
Low Insurance Rate. Prompt, Efficient Service.  
Member of Connecticut Warehousemen's Assoc.

PUEBLO, COLO.

128-130 SOUTH MAIN

## WEICKER TRANSFER & STORAGE CO.

Modern Sprinklered Building  
Household and Merchandise Facilities  
Pool Car Distribution  
Freight Forwarding and Distribution

★AGENT ALLIED VAN LINES—



BRIDGEPORT, CONN.

MEMBER

## The Bridgeport Storage Warehouse Co.

General Offices 10 Whiting St.

Bridgeport 1

General Merchandise Storage and Distribution

Total Storage Area 57,000 Sq. Ft.

Household Goods, Moving, Pack-  
ing and Shipping  
V. V. V. V. and H. R.R. Sidings



BRIDGEPORT, CONN.

## CILCO TERMINAL COMPANY, Inc.

535 SEAVIEW AVENUE, BRIDGEPORT, CONN.

DEEP WATER TERMINAL and STORAGE WAREHOUSES  
INTERCOASTAL and FOREIGN STEAMSHIP PIERS  
STEVEDORE CONTRACTORS—GENERAL CARGO STORAGE  
DIRECT AT STEAMER PIER

TRANSFER and DISTRIBUTION TO ALL CONN. & MASS. POINTS

BRIDGEPORT, CONN.

J. A. Munroe, Pres. J. G. Hyland, V. Pres.

## HARTFORD DESPATCH and WAREHOUSE CO., Inc.

1137 SEAVIEW AVENUE, BRIDGEPORT, CONN.

U. S. Bonded Warehouses Pool Car Distribution Household and  
Merchandise facilities Private Siding Our fleet covers Connecticut  
and Massachusetts daily. Warehouses at Hartford, Conn., and Spring-  
field, Mass.

Members: NFWA—AWA—ACW—AVL Agents

HARTFORD, CONN.

J. G. Munroe, Pres. J. G. Hyland, V. Pres.

## HARTFORD DESPATCH and WAREHOUSE CO., Inc.

410 CAPITOL AVENUE, HARTFORD, CONN.

U. S. Bonded Warehouses Pool Car Distribution Household and  
Merchandise facilities Private Siding Our fleet covers Connecticut  
and Massachusetts daily. Warehouses at Bridgeport, Conn., and Spring-  
field, Mass.

Members: NFWA—AWA—ACW—AVL Agents

HARTFORD, CONN.

## NATIONWIDE DESPATCH & STORAGE CO.

9 Center St., Hartford 5, Conn.

15,000 sq. ft. of Storage Space—Consign shipments  
via N.Y.N.H.&H.R.R.

Members: Independent Movers and Warehousemen's  
Assn., Conn. Motor Truck Assn., Hartford Better  
Business Bureau, Nationwide Group of Movers and  
Warehousemen.

MOVING  
TRUCKING  
STORAGE  
POOL CARS

HARTFORD, CONN.

Established 1903

## SILLENCE Warehouse Co., Inc.

HOUSEHOLD GOODS EXCLUSIVELY

Fireproof Warehouses

MWA CWA CMTA C of C



NEW HAVEN, CONN.

## NEW HAVEN TERMINAL, INC.

30 Waterfront St., New Haven 9, Connecticut

Truck, Rail and Deep Water Terminal Warehouse—  
45 car siding—open storage.

Pier 500 ft. long—2 Berths—28 ft. M.L.W.

ADT Watchman and Fire Alarm Service

NEW HAVEN, CONN.

## STORAGE and DISTRIBUTION



Established 1860

Merchandise, automobiles, fur-  
niture—23 buildings—ADT su-  
pervised watchman service—  
Low insurance rates—15 car  
siding—Central location—Daily  
truck delivery service covering  
Connecticut and southern Mas-  
sachusetts—  
Bonded with  
U.S. Customs.



## THE SMEDLEY CO.

145 Brewery St.,  
New Haven 11, Conn.

Members: AWA, NFWA, CWA, New Haven Chamber of  
Commerce, Hauling Agent Allied Van Lines, Inc.



Member NATIONAL FURNITURE WAREHOUSEMEN'S ASSN.  
Agent ALLIED VAN LINES, Inc.

NEW HAVEN, CONN.

PAUL A. DAHLGARD, Owner

## West Haven Trucking Company Storage Warehouses

Offices, 435 Congress Ave., New Haven 11

Moving and Storage of Household  
Goods Exclusively

Member Connecticut Warehousemen's Association



TORRINGTON, CONN.

Established 1860

## The E. J. Kelley Co. Storage Warehouses

Main Office, Torrington, Conn.—Telephone 9243

One of New England's Largest Trans-  
portation Companies

Household Goods Packed, Stored, Shipped.

Merchandise Storage and Distribution.

Pool Cars Distributed in All Parts of Connecticut.

Branch Offices in Bridgeport, Hartford, New Haven &  
Waterbury, Conn.; Springfield & Worcester, Mass.



WASHINGTON, D. C.

Telephone ADams 8600

## FEDERAL STORAGE COMPANY

1701 FLORIDA AVENUE, WASHINGTON 9, D. C.

E. K. MORRIS, President

(See Page Advertisement Directory Issue)

Agent—AVL, VVC. Member—NFWA, CanWA.

WASHINGTON, D. C.

Maurice Kressin, Mgr.

## Manhattan Storage & Transfer Co.

639 New York Ave., N.W., Washington 1, D. C.

Household Goods storage, packing, shipping. Pool Car Dis-  
tribution Merchandise.

Lift vans local delivery.

Member: Ind. Movers & Warehousemen's Assoc.



WASHINGTON, D. C.

**THE JACOBS TRANSFER COMPANY, INC.**

Est. 1857

61 Pierce Street, N. E.

Washington 2, D. C.

Phone: District 2412

**SERVICES in Washington and its Commercial Zone:**

**1. POOL CAR DISTRIBUTION**

On B. and O. R.R. Siding

Fast—Economical—Dependable

**2. LOCAL CARTAGE**

WASHINGTON, D. C.

**Security Storage Company**

OF WASHINGTON

Capital, Surplus and Reserves over \$1,300,000  
Security (steel) lift vans for overseas shipments. Door to door rates quoted. All risk insurance if desired.  
Members: NFWA, AVL, Canadian, British, French & Other Assn.  
1140 Fifteenth Street, Washington 5

WASHINGTON, D. C.

**IN WASHINGTON**

*There's always*

**ROOM AT SMITH'S  
22 WAREHOUSES**

"Smith's looked ahead. They foresaw the storage needs of Washington's War-time population. They added one warehouse after another and today Smith's have twenty-two large storage warehouses."

**DON'T MAKE A MOVE ...  
WITHOUT SHIPPING TO**

Exclusive Agents  
**Aero Mayflower  
Transit Co.**

**SMITH'S**



General Offices



**SMITH'S**

TRANSFER & STORAGE CO.  
1313 YOU ST. N.W. NO. 3343

WASHINGTON, D. C.

W. E. EDGAR, Mgr.

**THE TERMINAL STORAGE COMPANY  
OF WASHINGTON**

First, K and L Streets, N. E., Washington 2

Large buildings of modern construction, total floor area 204,000 square feet, of which 109,000 square feet is of fireproof construction.

Storage of general merchandise.

CONSIGN SHIPMENTS VIA B. & O. R. R.

Heated rooms for protection against freezing.

Member of American Warehousemen's Association

WASHINGTON, D. C.

**GENERAL MERCHANDISE  
STORAGE**

**Pool Car Distribution**

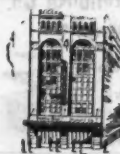
Direct Switching Connections Into Warehouse  
Pennsylvania Railroad

**TERMINAL REFRIGERATING &  
WAREHOUSING CORPORATION**

4th and D Streets, Southwest, Washington 4

WASHINGTON, D. C.

Established 1901



**UNITED ★ STATES  
STORAGE COMPANY**

418 10th St., N.W., Washington 4, D. C.

*We Reciprocate Shipments*

(See advertisement in Directory Issue, page 141)  
Member of N.F.W.A.—W.W.A.

JACKSONVILLE, FLA.

ESTABLISHED 1901

THE SOUTH'S LARGEST FIREPROOF WAREHOUSE  
EXCLUSIVELY FOR HOUSEHOLD GOODS & OFFICE EQUIPMENT

**DELCHER BROS. STORAGE CO.**

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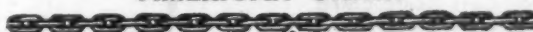
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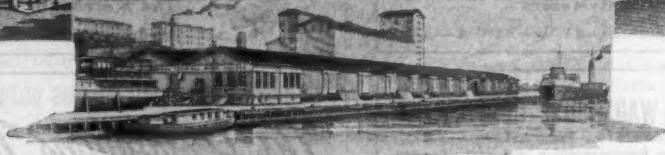
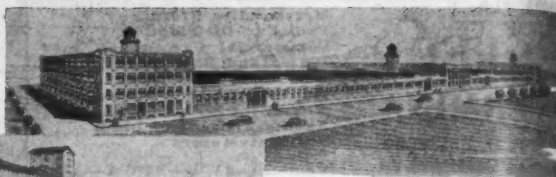
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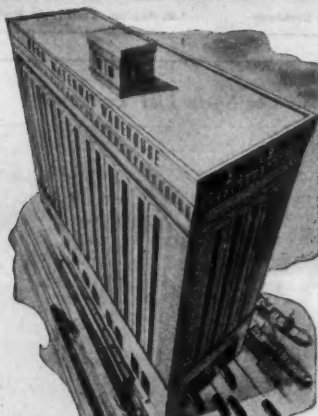
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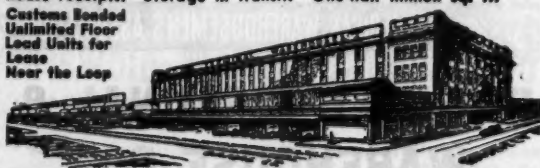
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Valley reaching 20 Million Consumers.

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Private Siding—Free switch from  
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51 years' warehousing nationally known accounts  
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Daily reports of shipments and attention to  
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Special Heavy Equipment for Machinery, Boliars, Presses.  
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Operators—Wholesale Merchants Delivery—Retail Merchants Delivery  
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Low insurance rates. Complete-Motor-Freight-Facilities.  
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100,000 sq. ft. Dry Storage Space.

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LOCAL CARTAGE FACILITIES. Member I.W.A.

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Merchandise Storage,  
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Local and Long Distance  
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Fireproof Warehouse Motor Truck Service

Distributing and Warehousing All  
Classes of Merchandise and House-  
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Established 1886

N.F.W.A.

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Specializing in MDSE Distribution

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A dependable agency for the distribution of merchandise and manufactured products.



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Nine warehouses, convenient to your trade.  
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Incorporated 1918

## General Storage and Distributing

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For Details See Directory Issue  
Distribution and Warehousing

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Baltimore's Most Modern Merchandise Warehouses  
Rail and Water Facilities  
Pool Car Distribution—Storage—Forwarding  
Private Siding Western Maryland Railway



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Vans Coast to Coast

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Operating Terminal Warehouses on Tracks of  
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Operating four Modern Warehouses on tracks of  
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GENERAL  
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Pool Car Distribution

Sidings on N. Y., N. H. & H. R. R.

Protected By  
A.D.T. Service

Member  
Mass. Warehousemen's Assn.

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Established 1894

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Connecting all railroads via

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General Merchandise and Household Goods Storage  
Cold Storage for Butter, Eggs, Poultry, Cheese, Meats  
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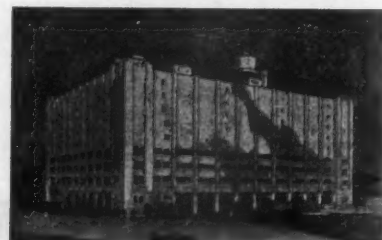
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Local, regional and storage-in-transit  
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Established 1883

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STORAGE AND MOVING, PACKING  
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150,000 sq. ft. located on Detroit's busiest thoroughfare.  
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Approximately 90% of All Commercial Storage and Pool Cars  
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Established 1919

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Merchandise and Household  
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Member **AMERICAN WAREHOUSEMEN'S ASSOCIATION**

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Established 1880

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Allied Van Lines Agents.  
Merchandise Storage and Distribution

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AN ASSOCIATED  
Member A. W. A.

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DIVISION OF

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WAREHOUSE

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Fireproof Storage Warehouse.  
Large fleet of equipment for local and long distance moving.

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STORAGE — TRUCKING — POOL CAR DISTRIBUTION  
Complete Facilities At The Three Important Centers  
Minneapolis Midway St. Paul

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Merchandise warehouse completely sprinklered—State Bonded. Pool cars distributed. Close to metropolitan Minneapolis and St. Paul, Northwestern Terminal places at your disposal 20 trucks, 15 tractors and 50 semi-trailers—complete motor equipment.

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Competent and capable merchandise warehouseman  
General Offices: 334 N. 1st Street

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Local Pool Car Distribution  
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Local and Long Distance Moving  
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Storage & Transfer Co.  
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Agents for Allied Van Lines, Inc.  
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Special attention given household effects of your officials and employees moved from or to St. Paul.  
HOUSEHOLD GOODS STORAGE MERCHANDISE STORAGE  
Complete Branch House Service  
**FIDELITY STORAGE and TRANSFER CO.**  
Office & Warehouse: 332 Rosabel Cor. E. 4th, St. Paul 1

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**A COMPLETE WAREHOUSING SERVICE**  
Merchandise Storage — Cold Storage  
Pool Car Distribution  
Industrial Facilities  
Situating in the Midway, the center of the Twin City Metropolitan area, the logical warehouse from which the Twin Cities and the Great Northwest can be served from one stock, with utmost speed and economy. No telephone toll charge to either city.  
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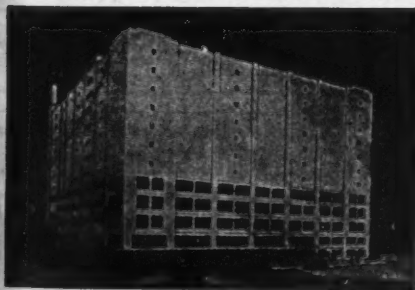
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LONG DISTANCE HAULING  
2748 West Liberty Ave., Pittsburgh 16, Pa.  
Members of N.F.W.A.—A.T.A.—P.F.W.A.—P.M.T.A.

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**DUQUESNE WAREHOUSE CO.**

Office: Duquesne Way and Barbeau St.  
Pittsburgh 22  
Merchandise Storage & Distribution  
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MERCHANDISE STORAGE • POOL CARS DISTRIBUTED  
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CONSIGN SHIPMENTS  
VIA PENNIA. RR TO 13th STREET STA.

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1917-19 Brownsville Road  
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Storage, Packing and Shipping

Member of National Furniture Warehousemen's Ass'n  
Agent of Allied Van Lines, Inc.



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THOMAS WHITE, Owner and Manager

13th AND SMALLMAN STS.  
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*In the Heart of  
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Jobbing District*

STORAGE IN TRANSIT  
COMPLETE TRUCKING FACILITIES  
P.R.R. SIDING  
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Also operators of

**WHITE MOTOR EXPRESS CO.**

Established 1918

**WHITE TERMINAL COMPANY**

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HOUSEHOLD STORAGE POOL CARS  
MERCHANDISE STORAGE PACKING  
LOCAL AND LONG DISTANCE MOVING  
PRIVATE SIDING, D. L. & W. R. R.

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**THE QUACKENBUSH WAREHOUSE CO.**

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MERCHANDISE AND HOUSEHOLD GOODS  
STORAGE POOL CAR DISTRIBUTION  
D L & W and D & H Sidings

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2 Warehouses with private sidings on Erie & P RR's  
reciprocal switching. Loans on Stored Commodities.  
Cold Storage for furs — Cold Storage lockers — Quick  
Freeze space.

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LONG DISTANCE MOVING  
Private Siding B. & O. R.R.

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General Storage and Distribution

Prompt and Efficient Service

12 Car Track Located on Lehigh Valley RR. Switches  
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HOUSEHOLD GOODS—DRAYAGE  
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Storage, Moving, Shipping  
Fleet of Long Distance Moving Vans  
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General Offices: 50 ALEPPO ST., Providence 9  
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Specialists in bulk storage of all kinds—  
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Over 400,000 square feet of sprinkler equipped space.

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Storage all kinds of General Merchandise, Pool Car Distribution. Lowest Insurance.  
Trackage facilities 50 cars. Dockage facilities on deep water.  
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Modern Concrete Warehouse. 100,000 Square Feet of Storage Space. Private Tracks Connecting with All Railroad and Steamship Lines. Motor Truck Service. Low Insurance Rates.

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General merchandise and household goods storage.

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Sprinkler equipped warehouse.

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Low Insurance Rate

Private Siding

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135,000 square feet on Southern Railway tracks

Equipped with Automatic Sprinkler

Insurance at 15c per \$100.00 Household goods shipments  
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PROMPT AND EFFICIENT SERVICE

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"Good housekeeping, accurate records,  
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Located in the center of the Jobbing  
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Sprinklered Low Insurance  
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"Memphis Most Modern Warehouse"

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Merchandise Storage & Pool Car Distribution

Local Delivery Service

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Pac. Private rail siding & car spot.

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ESTABLISHED 1894

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Merchandise storage, dependable service, free switching, Local cartage delivery.  
Illinois Central and Cotton Belt Railway tracks. Automatic sprinkler. A.D.T. watchman.

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Memphis Tennessee

Storage (Mdse.)—Pool Car Distribution—Local delivery service—Office Space.  
In the heart of the wholesale district and convenient to Rail, Truck and express  
terminals. Eight car railroad siding—(N.C.&S.T.L. and L.&N.)—Reepprood switch-  
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MERCHANDISE

WAREHOUSE.

RAIL, TRUCK

AND RIVER

TERMINAL.



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WAREHOUSE STOCK and POOL CAR DISTRIBUTION

Automatic Sprinkler System—Centrally Located

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POOL CAR DISTRIBUTION

FREE SWITCHING—CITY TRUCKING

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ESTABLISHED 1886

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Automatic Sprinklered—Spot Stock and Pool Car Distribution—  
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Long Distance Operators

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Merchandise and Household Goods

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30,000 Sq. Ft. Distribution of Pool Cars

Transfer Household Goods

Agent for A.V.L. Member of N.F.W.A.—S.W.A.T.A.

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AND STORAGE COMPANY**

Located AT PORT SITE

adjacent to docks NAVIGATION DISTRICT NO. 1

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MERCHANDISE EXCLUSIVELY

96,400 Sq. Ft. Sprinklered

Low Insurance Rates

Member: Southwest Warehouse and Transfer's Ass'n



# TEXAS

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Specialists in  
General Merchandise Storage—Pool Car Distribution  
Public Bonded Warehouses at Alton, Corpus Christi, Harlingen and Victoria  
Daily and overnight common carrier Motor Freight Service to Houston, San Antonio, Austin, Laredo and Rio Grande Valley, serving all intermediate points.  
Expert Handling; Inquiries Invited

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MERCHANDISE STORAGE—POOL CAR DISTRIBUTION  
Our modern Centrally located Storage Warehouse is completely equipped to serve you with over 75,000 square feet of merchandise and household goods storage space.  
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**BINYON-O'KEEFE**  
Fireproof Storage Co.  
Since 1875 Since 1875  
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Operators of the Lone Star Package Car Company (Dallas and Fort Worth Divisions)  
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Southwest Warehouse & Transfer—Member's Assn., Rotary Club



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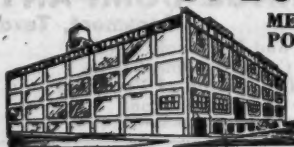
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SERVING THE GREAT  
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EVERY ACCOUNT IS  
PERSONALLY SUPERVISED  
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CONTRACT OPERATORS FOR ALL RAIL LINES AND UNIVERSAL CARLOADING & DISTRIBUTING COMPANY

Over 10,000,000 Pounds of Freight Handled Monthly for Dallas Shippers



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Lowest Content Insurance Rate  
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MERCHANDISE STORAGE—POOL CAR DISTRIBUTION  
Our modern Centrally located Storage Warehouse is completely equipped to serve you with over 90,000 square feet of merchandise and household storage space.  
MOVING—STORAGE—PACKING—SHIPPING  
**BINYON-O'KEEFE**  
Fireproof Storage Co.  
Since 1875 Since 1875  
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Storage, Cartage, Pool Car Distribution  
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Merchandise Storage  
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Office, Display and Warehouse Space  
Branch Office Facilities  
Amenable room for Automobiles and Truck Service  
LOW INSURANCE RATE

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5 conveniently located commercial bonded warehouses to serve you.  
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**Better Warehousing in HOUSTON**  
We operate a modern low insurance rate warehouse in the center of the vibrant jobber's trucks; well trained personnel; cooler space.  
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Lowest Insurance Rate  
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BONDED

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POOL CAR DISTRIBUTORS  
STORAGE AND DRAYAGE

Dependable Service Since 1913

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DISTRIBUTION

INSURANCE RATE - - - 10c

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Sprinklered—A.D.T. Watchmen

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Established 1901

**TEXAS WAREHOUSE COMPANY**

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Under Same Continuous Management

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Pool Car Distribution Sprinklered Throughout  
A.D.T. Supervised Service

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**MERCHANDISE STORAGE**

Warehouses Sprinklered Throughout

Supervised by A.D.T. Service.

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Members A.W.A. and State and Local Associations.

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OVER 50 YEARS IN HOUSTON

Merchandise &amp; Household Goods Storage—Pool Car Distribution—

Lift Van Service—30 car lengths of storage.

Fireproof Warehouse—A.D.T. Automatic Fire and Burglary Protection.

Agents for Allied Van Lines, Inc.

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**MERCHANTS TRANSFER & STORAGE CO.**

Merchants &amp; Transfer Sts., San Antonio 6

**Complete Storage and Distribution Service**

Over 50 years of satisfactory service

Member of A.W.A.—N.F.W.A.—S.W.A.

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POOL CAR DISTRIBUTION

MERCHANDISE AND COLD STORAGE

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**CENTRAL WAREHOUSE**

520 West 2nd South St., Salt Lake City 1

Fireproof

Sprinklered

Insurance rate 15c. Merchandise Storage.

Pool Car Distribution. Office Facilities.

Member A. W. A.

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**Merchandise Storage and Distribution**

Over 1,000,000 cubic feet reinforced concrete Sprinklered Space

Insurance Rate 11 Cents

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Represented by

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Storage—Pool Car Distribution

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328 West 2nd South, Salt Lake City 1 Est. 1910

12,000 sq. ft. space. Reinforced concrete and brick. Dismantled, accessible, and central location. UP. spur with free switching from or to other lines. P-U&D service rail or truck. Systematic delivery service twice daily. 90% Co-ins. rate 10¢ per \$100.00. A.D.T. automatic burglar and fire protection. Office and desk space available.

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**SALT LAKE CITY, UTAH** "This is the Place"

**FOR BETTER SERVICE**

**SECURITY STORAGE & COMMISSION CO.**

230 S. 4TH WEST ST., SALT LAKE CITY 1

Over 39 Years' Experience

Merchandise Warehousing - Distribution  
Sprinklered Building - Complete Facilities  
Lowest Insurance Cost - A.D.T. Watchman Service  
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HOUSEHOLD AUTOMOBILE STORAGE MERCHANDISE

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22nd St. & Monticello Ave.  
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MODERN SPRINKLER EQUIPPED WAREHOUSE  
50,000 SQUARE FEET PRIVATE RAIL SIDING  
Lowest Insurance Rate in Norfolk. Pool Car Distribution

WE SPECIALIZE IN MERCHANDISE STORAGE  
AND DISTRIBUTION

AGENTS AERO WAYFLOWER TRANSIT COMPANY  
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**IN THE PROSPEROUS TIDEWATER**  
**AREA THRU PRUDENTIAL**

HOUSEHOLD GOODS MOVED, PACKED, SHIPPED  
POOL CAR TRANSFER TRUCKING SERVICE  
LARGE FIREPROOF WAREHOUSE  
OPEN YARD STORAGE AVAILABLE  
LOCATED ON N. & W. SIDING

**PRUDENTIAL STORAGE and**  
**WAREHOUSE COMPANY**

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Serving—Va. Beach, Ft. Monroe, Newport News, Williamsburg  
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**Security Storage and Van Co.**

530 FRONT STREET

Norfolk's Finest Fireproof Furniture Warehouse  
Motor Van & Lift Van Service  
Collections — Distribution

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**SOUTHGATE**  
**STORAGE COMPANY, Inc.**

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For economical storage and distribution  
you will want to know more about our  
individualized services. Our fireproof  
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on the waterfront and in the center of  
Norfolk's wholesale district. Served by  
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Three Fireproof Storage Warehouses—510,000 Cubic Feet Floor Space—Automatic  
Sprinkler System—Low Insurance Rates—Careful Attention to Storage—Packing and  
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Motor Van Service to All States—Freight Truck Line.

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**THE W. FRED. RICHARDSON**  
**Security Storage Corporation**

Main at Belvidere, Richmond 20  
PACKING FOR SHIPMENT  
Local and Long Distance Movements  
ESTABLISHED 1897  
Agent for Allied Van Lines, Inc.

STORAGE  
HOUSEHOLD  
GOODS  
OBJECTS OF ART  
FURS—RUGS  
VALUABLES


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**VIRGINIA BONDED WAREHOUSE**  
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160,000 SQ. FT.  
SPACE  
BUILDINGS  
SPRINKLERED  
U. S. BONDED  
& PUBLIC  
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STORAGE &  
DISTRIBUTION

INSURANCE  
RATES  
30¢ PER \$100  
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**H. L. LAWSON & SON**  
*Finance and Storage*  
Pool Car Distributors  
General Merchandise Storage

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**ROANOKE PUBLIC WAREHOUSE**

369 W. Salem Ave., W., Roanoke 5

Capacity 500 Cars  
Private Railroad Siding

Automatic Sprinkler  
Accurate Accounting

We make a Specialty of Storage and Pool Car Distribution  
for Agents, Brokers and General Merchandise Houses.  
Member of American Chain of Warehouses

**ABERDEEN, WASH.** Established 1916

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Merchandise & Household Goods Storage

Private siding. Pool car distribution. Consign  
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Long distance moving.

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A Seattle Institution—56 years of outstanding service

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Highest financial rating; new fireproof, A.D.T. sprinklered  
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SEATTLE, WASH. LET LYON GUARD YOUR GOODS



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**WAREHOUSING • DISTRIBUTION • TRUCKING**

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**MDSE. WAREHOUSING AND DISTRIBUTION**  
Concrete and Steel Warehouse located on N.P.R.R. Tracks. Close to all Railway  
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Swift and Frequent Service to Port Lewis, McChord Field and Bremerton Navy Yard  
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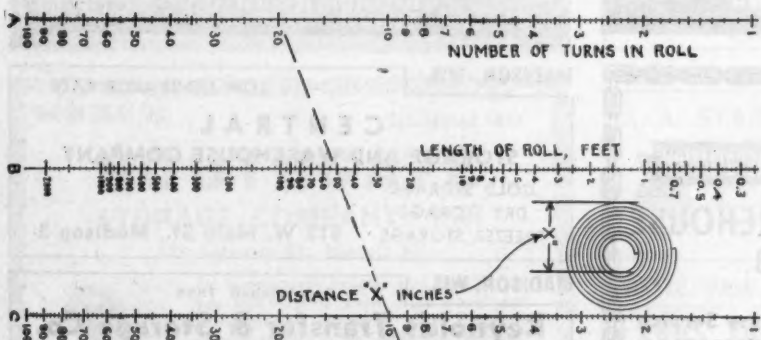
## SHEBOYGAN

Warehouse & Forwarding Co.

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## How to Measure Any Roll



USE the simple chart shown above when you want to measure the number of ft. of material in any roll. The distance "X" must be measured

in in., exactly as indicated. Only one measurement is necessary.

Example: How many ft. of material are there in a roll of 20 turns, the

distance "X" being 10 in.?

The dotted line drawn across the chart shows how the length is obtained. It measures slightly over 10 ft. The result is found by connecting the 20 in col. A with the 10 in col. B. The answer is found in col. B.

It will be noted that the range of the chart is great enough to cover any ordinary roll. Don't actually draw a line, as shown above. Just lay a straightedge across from known point to known point. The intersection at the middle column gives the length of the roll immediately. (W. F. Schapfer, M.E.)

## Incorporated

Bernhard Storage & Carting Corp. has been incorporated in Buffalo N. Y., with a capital of \$50,000. Incorporators are Earl A. Jung, Charles J. Goettelman, Hedwig T. Bernhard and Clara B. Bernhard. (Toles)

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M. A. RAWLINSON, Pres. &amp; Gen. Mgr.

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Established 1885 610 Yonge St., Toronto 5, Can.  
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Dry Storage Cold Storage Bonded Storage  
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Established 1883  
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**Westmount Transfer & Storage Ltd.**

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LOCAL AND LONG DISTANCE MOVERS  
 Private Room System for Storage  
**CRATING, PACKING and SHIPPING**  
 Charges Collected and Promptly Remitted  
 Member: N. F. W. A., Can. W. A.



## What About Slippery Floors?

*The answer to the problem of accidents is attention to housekeeping,  
 the condition of the floor, the cleanliness of the floor, and materials  
 incorporated into the floor to suit the condition.*

NONSKID paving brick has been improved to a point where it is accepted by industry as the best non-slip floor covering for general use. If a department has a floor of the old style brick that is subjected to grease, hot water and rough usage, the bricks wear hollow in places, causing a slipping hazard. When these old floors are replaced with the new nonskid brick and subjected to the same treatment, i.e., water and grease, there is a noticeable improvement in the gripping qualities. It gives the employee a sense of security; he can walk across the floor with confidence.

This nonskid brick has an intermix of iron ore which is fused during the baking process, providing iron particles throughout the entire body of the brick. Regardless of how deeply the brick becomes worn, the nonslip quality remains.

Concrete floors are satisfactory in departments where they are kept dry and free of fats, grease and hot water. A good slip-proof surface can be obtained by troweling into the cement finish carborundum or aloxite chips. The only unsatisfactory aspect in this floor finish is that when it disintegrates or wears to a point below the finish, where the abrasive chips are no longer present, the nonslip quality no longer exists. The cost of a floor of this kind is high, but careful planning of walkways will keep down the total expense.

Abrasive-ingrained vitreous tile is recommended in the U. S. Department

of Labor Pamphlet, "Slaughtering and Meat Packing, The Control of Accidents." The following is quoted from that publication:

"Floors in sections which require frequent flushing or washing can be made of various materials, but a vitreous tile with some abrasive ingrain has been found to be most practical from both safety and durability angles. Some of the larger companies in this industry now use only such tile. A hard tile, preferably with a vertical grain, stands up well under hard usage, does not become too slippery for safety under average circumstances, allows practically no absorption, and has the approval of the Department of Agriculture. Too, this type of tile can be used in resurfacing worn floors at less expense, usually, than the normal cost of new floors, and the expense of cleaning, drying, or nonslip compounds is obviated."

Some relief from the slipping hazard in food plants can be attained by one of the following steps.

1. Sprinkle loose salt on clean floors.
2. Apply strips of metal safety plates on approaches to scales, doorways and docks.
3. Cover portions of the floor in areas where traffic is the heaviest; i.e., aisles or walkways, with slate-coated or mineral-coated roofing paper. This has been found to be

From a paper presented before the National Safety Council.

very effective in preventing slips and falls. However, if subjected to rough usage and hot water, it soon disintegrates and has to be replaced. Applying the proverb, "The cost of accidents is always greater than the cost of prevention," it would seem to be good business to replace it as often as the occasion requires. Abrasive floor paints are being developed which may overcome these objections.

Industrial asphalt planking has proved to be very satisfactory in warehouses, docks, runways and ramps.

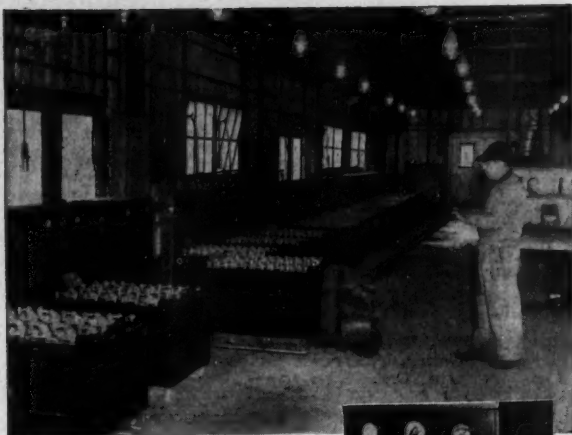
The answer to the problem of accidents is attention to housekeeping, the condition of the floor, the cleanliness of the floor, and anti-slipperiness incorporated into the floor to suit the condition.

The foreman can aid this cause materially by instructing employees in the safe ways of performing each operation, by teaching them to observe all work areas, walkways and ramps, and be guided by directional signs, aisle markings and other reminders to avoid slips and falls. He can instruct employees in the importance of walking correctly and being constantly on the alert. Slips and falls constitute about 10 per cent of all serious injuries.

Color is used to advantage in marking hazardous locations.

A clean floor is usually a safe floor, and regardless of the type of flooring used, it is good business to keep it clean and in good repair.





This Army Ordnance Depot uses G-E automatic chargers to speed handling of ammunition for our armed forces.

## AUTOMATIC CHARGING OF ELECTRIC TRUCK BATTERIES PAYS BIG DIVIDENDS



G-E Automatic Copper-oxide Battery Chargers are designed to meet the exacting charging requirements of large industrial electric truck batteries as well as the smaller requirements of batteries used in motorized hand trucks. Located in central charging stations or in truck working areas these trouble-free chargers offer astounding savings in POWER...TIME...LABOR.

### HERE'S WHY

**COMPLETELY AUTOMATIC**—The truck operator merely sets a simple control and the charger "takes over." It delivers the charge then shuts itself off.

**LOW INITIAL COST**—Initial cost is low and quickly amortized by reduced power bills, maintenance and labor costs.

**REDUCED POWER COST**—G-E Copper-oxide Chargers operate at 70 per cent efficiency at full load, only slightly less at one-half load.

**NEGLECTIBLE MAINTENANCE**—The only moving part is the fan which needs lubrication once a year. Removal of dust from the copper-oxide stacks is the only other maintenance required.

**HIGHLY FLEXIBLE**—No costly special foundation, base or other installation equipment is needed. Chargers can be easily moved from place to place.

**OCCUPY LITTLE SPACE**—The G-E automatic charger occupies approximately three square feet of floor space and can be fitted into convenient unused spots.

**NOON-HOUR BOOST**—Installed in truck working areas the charger will give a "noon-hour" boost to batteries.

For further information, write to Section A753-111, Appliance and Merchandise Department, General Electric Co., Bridgeport, Conn. Ask for the new truck charger bulletin—Publication No. 52-46.

**BUY WAR BONDS AND KEEP THEM**

**GENERAL ELECTRIC**



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